EUROFINS PRODUCT TESTING SERVICE (SHANGHAI) CO., LTD.

EMC TEST- REPORT

TEST REPORT NUMBER: EFSH15030095-IE-01-E01-A5

eurofins
Eurofins Product Testing Service (Shanghai) Co., Ltd.
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2 General Information

2.1 Notes

The results of this test report relate exclusively to the item tested as specified in chapter “Description of test item” and are not transferable to any other test items.

Eurofins Product Testing Service (Shanghai) Co., Ltd. is not responsible for any generalisations and conclusions drawn from this report. Any modification of the test item can lead to invalidity of test results and this test report may therefore be not applicable to the modified test item.

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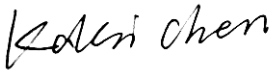
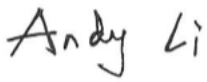
Operator:

2022-09-16		Kalsi Chen / Project Engineer	
Date	Eurofins-Lab.	Name / Title	Signature

Technical responsibility for area of testing:

2022-09-16		Andy Li / Supervisor	
Date	Eurofins	Name / Title	Signature

2.2 Testing laboratory

Eurofins Product Testing Service (Shanghai) Co., Ltd.
No.395 West Jiangchang Road, Jing'an District, Shanghai, 200436, P.R. China
Telephone : +86-21-61819181
Telefax : +86-21-61819180

Test location, where different:

2.3 Details of approval holder

Name	:	Cixi Tianma Electrical Appliance Co., Ltd.
Address	:	No. 483 Zhenxi Road, Zhouxiang Town, Cixi City, Ningbo, 315324, P.R. China
Telephone	:	./.
Fax	:	./.

2.4 Application details

Date of receipt of test item	:	2014-11-18
Date of test	:	2014-11-18 to 2015-03-23
Amendment 1	:	2016-09-14
Amendment 2	:	2017-08-31 (Date of test: 2017-07-12 to 2017-07-24)
Amendment 3	:	2017-12-15 (Date of test: N/A)
Amendment 4	:	2020-08-25 (Date of test: 2019-12-09 to 2019-12-13)
Amendment 5	:	2022-09-16 (Date of test: N/A)

2.5 EUT Information

Product type	:	Toaster
Model name	:	TM-2001, TM-2001J, TM-2001F, TM-2001FJ, TM-2001T, TM-2001JT, TM-2001FT, TM-2001FJT, TM-2005, TM-2005J, TM-2005F, TM-2005FJ, TM-2005T, TM-2005JT, TM-2005FT, TM-2005FJT, TM-2006, TM-2006J, TM-2006F, TM-2006FJ, TM-2006T, TM-2006JT, TM-2006FT, TM-2006FJT, TM-2009F, TM-2009FJ, TM-2015T, TM-2016T, TM-2019, TM-2019T, TM-2019TJ, TM-2020, TM-2020T, TM-2020TJ, TM-2010, TM-2010P, TM-2010J, TM-2010F, TM-2011, TM-2011P, TM-2011J, TM-2011F, TM-2006M, TM-2006MJ, TM-2006P, TM-2017T, TM-2019B, TM-2020B, TM-2019J, TM-2020J, TM- 2019BJ, TM-2020BJ
Brand name	:	./.
Serial number	:	./.
Ratings	:	220-240V~, 50/60Hz, Class I for all models TM-2001, TM-2001J, TM-2001F, TM-2001FJ, TM-2001T, TM-2001JT, TM-2001FT, TM-2001FJT: 600-700W, TM-2005, TM-2005J, TM-2005F, TM-2005FJ, TM-2005T, TM-2005JT, TM-2005FT, TM-2005FJT, TM-2006, TM-2006J, TM-2006F, TM-2006FJ, TM-2006T, TM-2006JT, TM-2006FT, TM-2006FJT, TM-2010, TM-2010P, TM-2010J, TM-2010F, TM-2011, TM-2011P, TM-2011J, TM-2011F, TM-2006M, TM-2006MJ, TM-2006P: 700-800W; TM-2009F, TM-2009FJ: 1100-1300W; TM-2015T, TM-2019, TM-2019T, TM-2019TJ, TM-2020, TM-2020T, TM-2020TJ, TM-2017T, TM-2019B, TM-2020B, TM-2019J, TM-2020J, TM-2019BJ, TM-2020BJ: 650-750W; TM-2016T: 1280-1480W
Test voltage	:	230V~, 50Hz
Additional information	:	

The appliances covered by this report are toasters for household and indoor use only.

The detail differences are as below:

Model	Type of shelf	Type of PCB	Type of bread supportor
TM-2001	Movable type	Type A1	No bread supportor
TM-2001J			Type A
TM-2001F	Fixed type		No bread supportor
TM-2001FJ			Type A
TM-2001T	Movable type	Type B1	No bread supportor
TM-2001JT			Type A
TM-2001FT	Fixed type		No bread supportor
TM-2001FJT			Type A
TM-2005	Movable type	Type A2	No bread supportor
TM-2005J			Type A
TM-2005F	Fixed type		No bread supportor
TM-2005FJ			Type A
TM-2005T	Movable type	Type B2	No bread supportor
TM-2005JT			Type A
TM-2005FT	Fixed type		No bread supportor
TM-2005FJT			Type A
TM-2006	Movable type	Type A3	No bread supportor
TM-2006J			Type A
TM-2006F	Fixed type		No bread supportor
TM-2006FJ			Type A
TM-2006T	Movable type	Type B3	No bread supportor
TM-2006JT			Type A
TM-2006FT	Fixed type		No bread supportor
TM-2006FJT			Type A
TM-2009F	Fixed type	Type A1	No bread supportor
TM-2009FJ			Type B

After review, TM-2001FJ, TM-2001JT, TM-2005FJ, TM-2005JT, TM-2006FJ, TM-2006JT and TM-2009FJ were subjected to full tests and the most unfavourable data was recorded.

See page 159 for Amendment 1 and Amendment 2.
See page 160 to 161 for Amendment 3, Amendment 4 and Amendment 5.

2.6 Test standards

Technical standard :

EN IEC 55014-1: 2021

EN IEC 55014-2: 2021

EN IEC 61000-3-2: 2019+A1: 2021

EN 61000-3-3: 2013+A1: 2019+A2: 2021

3 Technical test

3.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed. ☒

or

The deviations as specified were ascertained in the course of the tests performed. ☐

3.2 Test environment

Temperature	: 20	...	25°C
Relative humidity content	: 30	...	60%
Air pressure	: 100	...	103kPa

3.3 Test mode

Operating: Max. level

3.4 Test equipment utilized

Refer to the latest test date: 2019-12-09 to 2019-12-13

Measurement Equipment List				
No.	**Name:**	**Type:**	**Manufacturer:**	**Cal due data:**
1	EMI test receiver	ESCI	R&S	2020-11-21
2	Single phase Harmonics & Flicker analyser	PACS-1	California Instruments	2020-11-21
3	AC Power Source	5001ix	California Instruments	2020-11-21
4	Coupling/Decoupling Network	L 801 M2/M3	Luethi	2020-11-21
5	Ultra Compact Simulator	UCS 500N7	EMTEST	2020-11-21
6	ESD Gun	NSG 437	TESEQ	2020-07-10
7	Current transformer	MC2630	EMTEST	2020-11-21
8	Motorized variac	MV2616	EMTEST	2020-11-21
9	Continuous wave simulator	CWS500N1	EMTEST	2020-11-21
10	Magnetic field coil	MS100	EMTEST	2020-11-21
11	Current transformer	MC26100	EMTEST	2020-11-21
12	Artificial mains	ENV216	R&S	2020-11-21
13	Click analyser	CL55C	AFJ	2020-09-07
14	Absorbing clamp	MDS21	Luethi	2020-11-21
15	EM clamp	EM101	Luethi	2020-11-21

3.5 Test results

☒ 1st test ☐ test after modification ☐ production test

Test case	Subclause	Required	Test passed	Test failed
Conducted Emission	Clause 4.3.2 & 4.3.3 of EN IEC 55014-1	☒	☒	☐
Disturbance power	Clause 4.3.4 of EN IEC 55014-1	☒	☒	☐
Radiated disturbance	Clause 4.3.4 of EN IEC 55014-1	☐	☐	☐
Radiated disturbance (1GHz to 6GHz)	Clause 4.3.5 of EN IEC 55014-1	☐	☐	☐
Magnetic field (equipment using IPT)	Clause 4.3.2 of EN IEC 55014-1	☐	☐	☐
Discontinuous disturbance	Clause 4.4.2 of EN IEC 55014-1	☒	☒	☐
Harmonic Current Emissions	EN IEC 61000-3-2	☒	☒	☐
Voltage Changes, Voltage Fluctuations and Flicker	EN 61000-3-3	☒	☒	☐
Electrostatic Discharge	Clause 5.1 of EN IEC 55014-2 & IEC 61000-4-2	☒	☒	☐
Electrical Fast Transients	Clause 5.2 of EN IEC 55014-2 & IEC 61000-4-4	☒	☒	☐
Injected currents	Clause 5.3 & 5.4 of EN IEC 55014-2 & IEC 61000-4-6	☒	☒	☐
Radio frequency electromagnetic fields	Clause 5.5 of EN IEC 55014-2 & IEC 61000-4-3	☐	☐	☐
Surges	Clause 5.6 of EN IEC 55014-2 & IEC 61000-4-5	☒	☒	☐
Voltage dips	Clause 5.7 of EN IEC 55014-2 & IEC 61000-4-11	☒	☒	☐

Note 1: The additional margin (0-10dB) was meet in the frequency range 200MHz to 300MHz in Disturbance power test (absorbing clamp), and the EUT did not contained any circuit with clock frequency more than 30MHz, so the EUT was compliant with the Radiated disturbance test (300MHz-1GHz) without test.

Note 2: The EUT belongs to Category II, so the Radio frequency electromagnetic fields test is not required.

Note 3: Radiated disturbance test in the frequency range from 1 GHz to 6 GHz is not required as the highest clock frequency (Fx) of EUT is less than 108MHz.

4 Emission Test

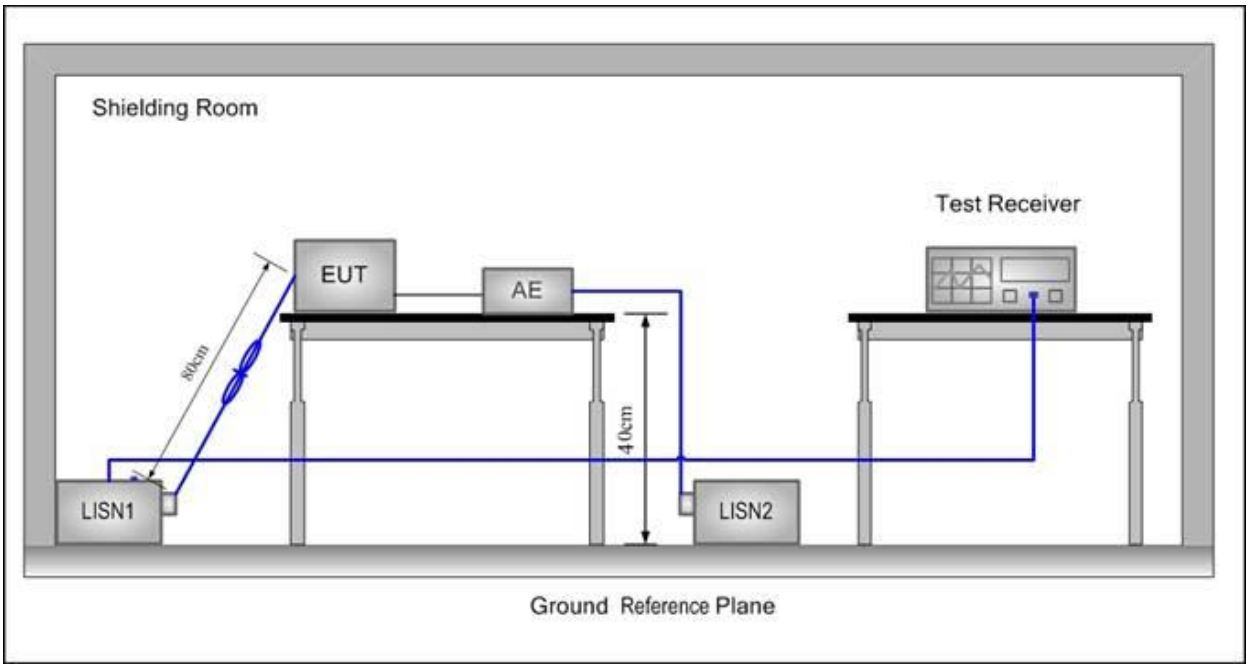
4.1 Conducted Emission

This clause lays down the general requirements for the measurement of disturbance voltage produced at the terminals of apparatus.

4.1.1 Limits

Frequency range MHz	At mains terminals dB (μV)	
	Quasi-peak Limit	Average Limit
0.15 to 0.50	66 to 56	59 to 46
0.50 to 5	56	46
5 to 30	60	50
Note1: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 30 MHz.		
Note2: The lower limit is applicable at the transition frequency.		

4.1.2 Measurement procedure



1. The mains terminal disturbance voltage was measured with the EUT in a shielded room.
2. The EUT was connected to AC power source through a LISN (Line Impedance Stabilization Network) which provides a (50 μ H + 5 Ω) || 50 Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN, which was bonded to the ground reference plane in the same way as the LISN for the unit being measured.

3. The tabletop EUT was placed upon a non-metallic table 0.4m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.

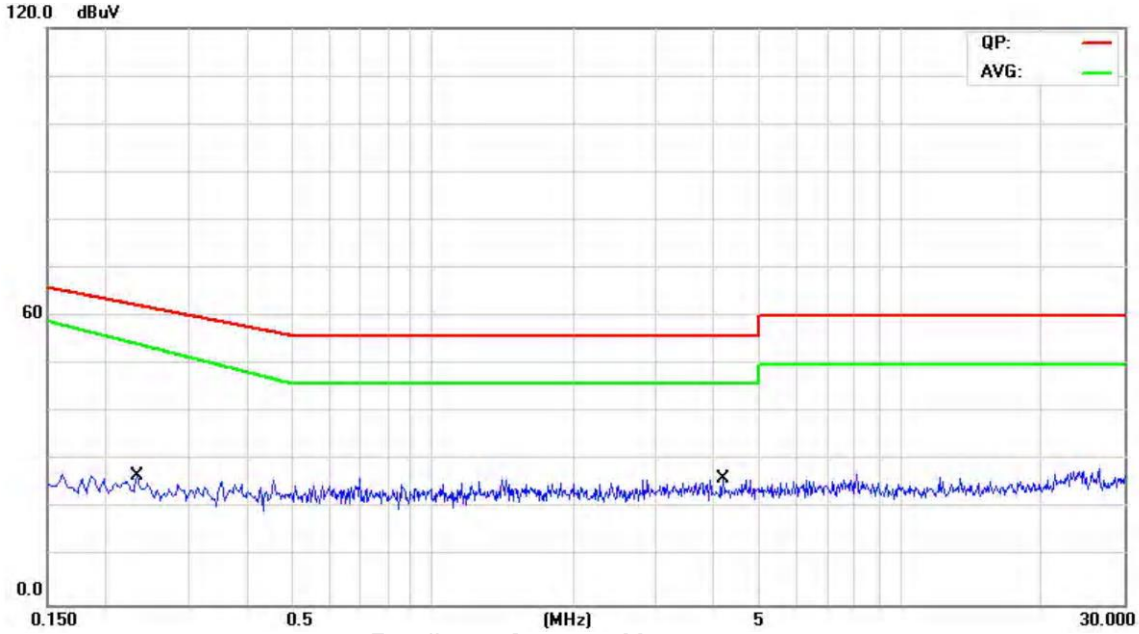
4. Before get the final emission results with quasi-peak(QP) detector and average(AVG) detector, a pre-scan was performed with the peak(PK) and average(AVG) detector to find out the maximum emission data plots of the EUT.

4.1.3 Measurement uncertainty

Ulab(cond) = 2.5dB at 95% level of confidence, k=2

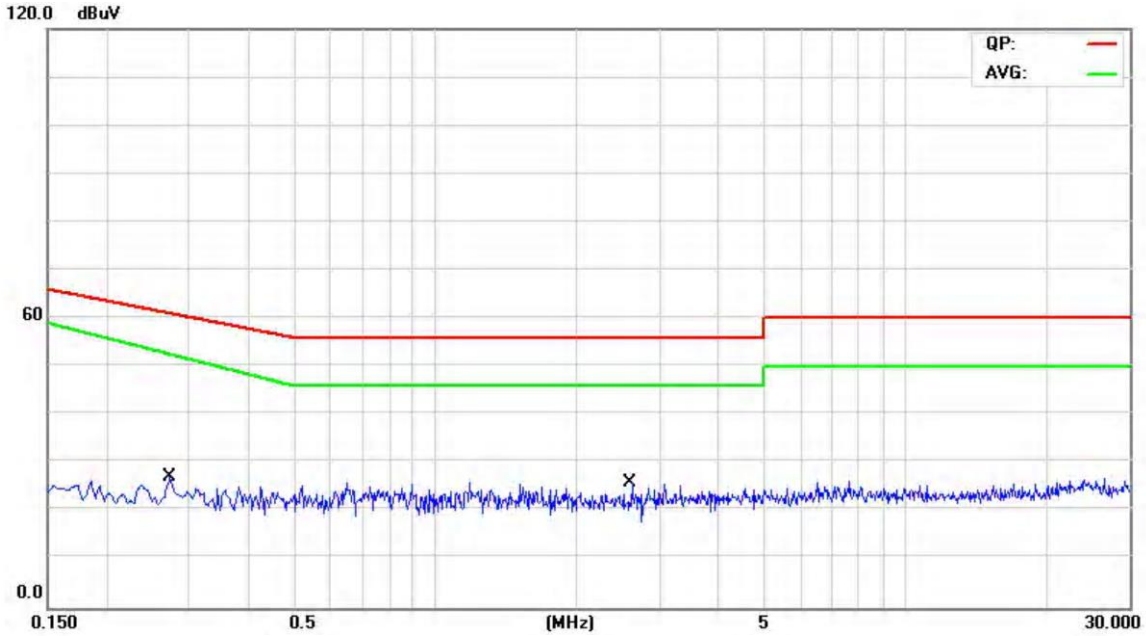
4.1.4 Results -Measurement Data

TM-2001FJ
Live Line:
Level



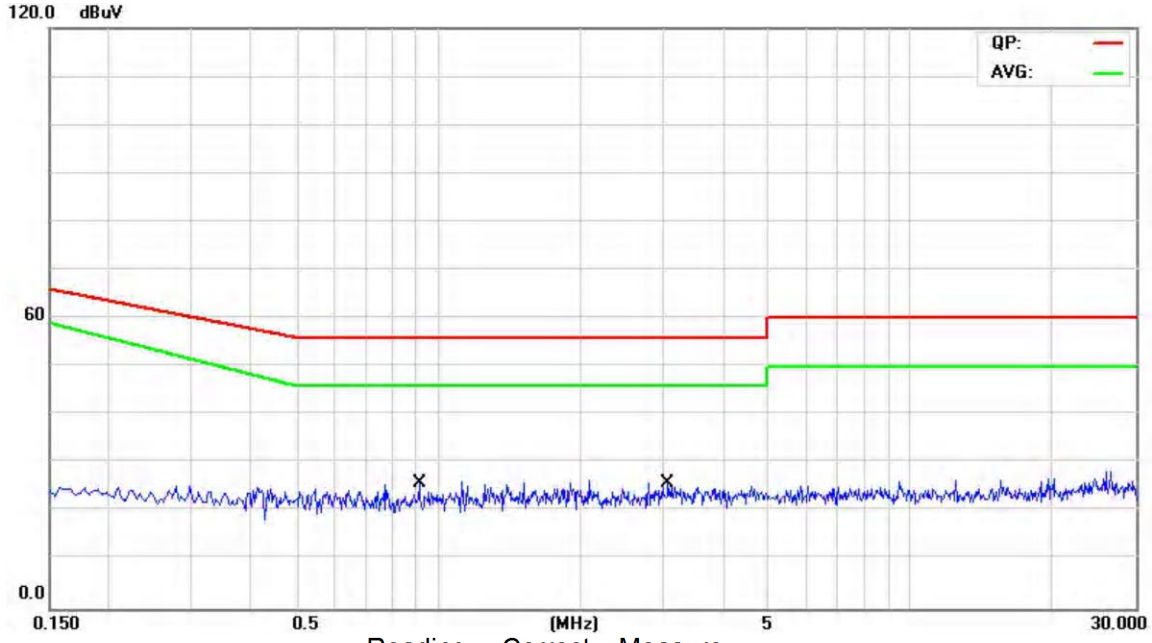
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2340	9.16	9.85	19.01	62.31	-43.30	QP
2		0.2340	6.22	9.85	16.07	54.20	-38.13	AVG
3		4.1740	9.28	9.95	19.23	56.00	-36.77	QP
4	*	4.1740	4.52	9.95	14.47	46.00	-31.53	AVG

Neutral Line:
Level



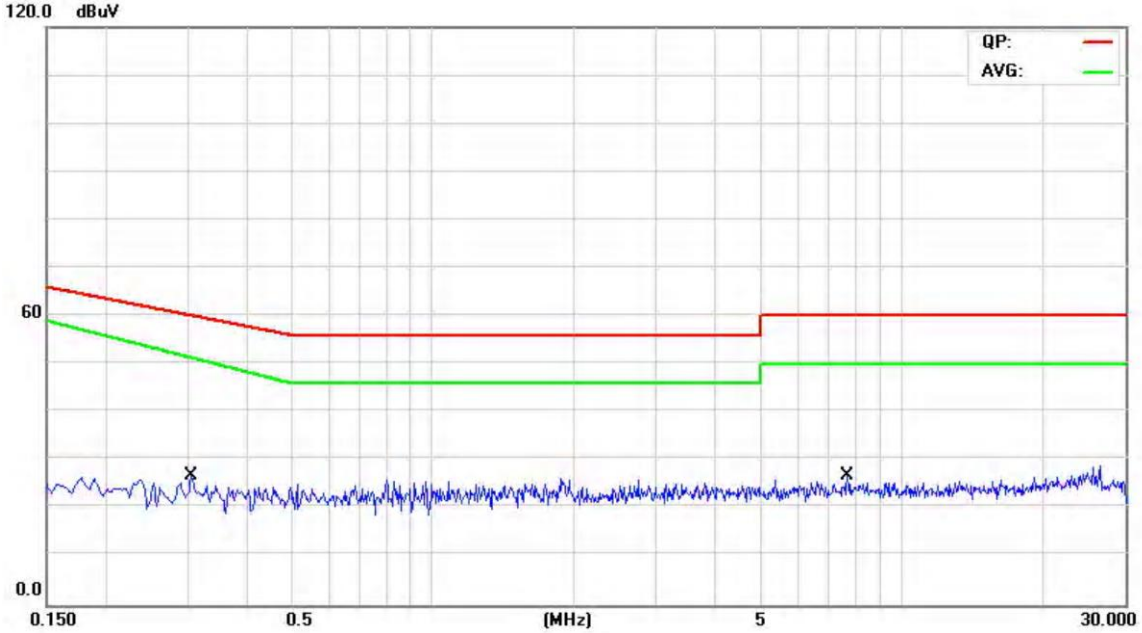
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2740	9.07	9.83	18.90	61.00	-42.10	QP
2		0.2740	5.90	9.83	15.73	52.49	-36.76	AVG
3		2.6340	9.00	9.89	18.89	56.00	-37.11	QP
4	*	2.6340	4.40	9.89	14.29	46.00	-31.71	AVG

TM-2001JT
Live Line:
Level



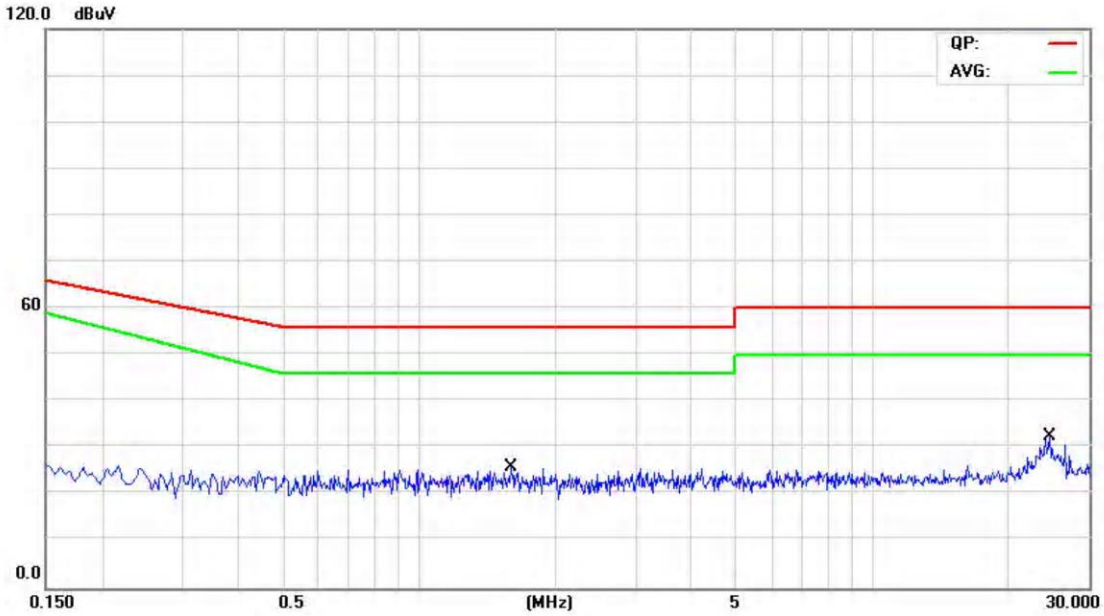
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.9100	8.11	9.68	17.79	56.00	-38.21	QP
2	*	0.9100	5.28	9.68	14.96	46.00	-31.04	AVG
3		3.0580	9.15	9.91	19.06	56.00	-36.94	QP
4		3.0580	4.52	9.91	14.43	46.00	-31.57	AVG

Neutral Line:
Level



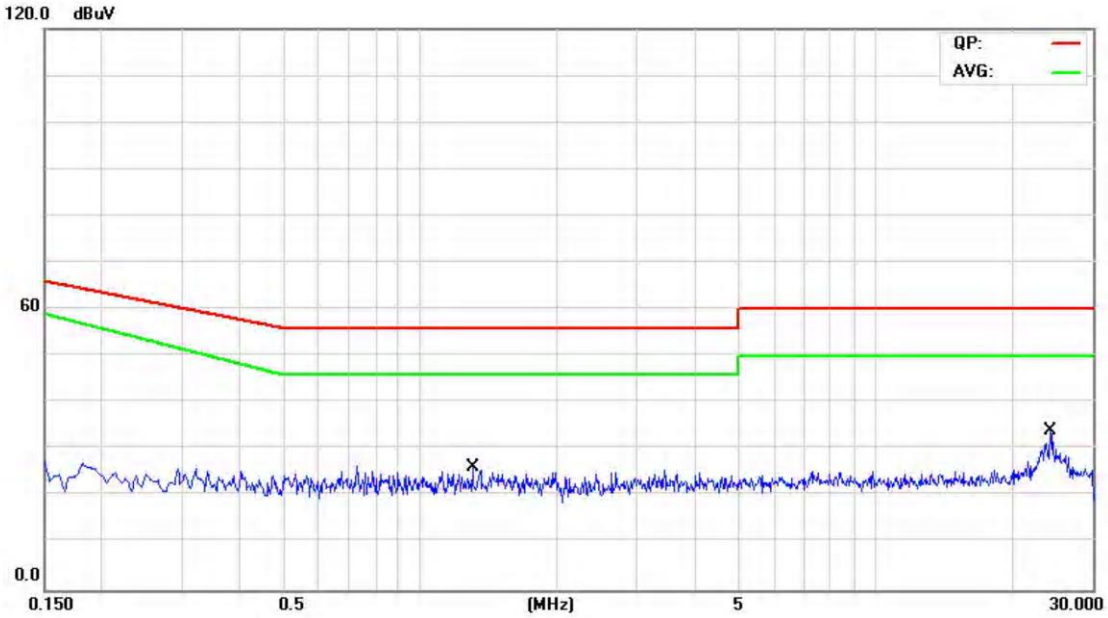
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.3060	9.78	9.81	19.59	60.08	-40.49	QP
2	*	0.3060	6.32	9.81	16.13	51.30	-35.17	AVG
3		7.6660	9.40	9.99	19.39	60.00	-40.61	QP
4		7.6660	4.75	9.99	14.74	50.00	-35.26	AVG

TM-2005FJ
Live Line:
Level



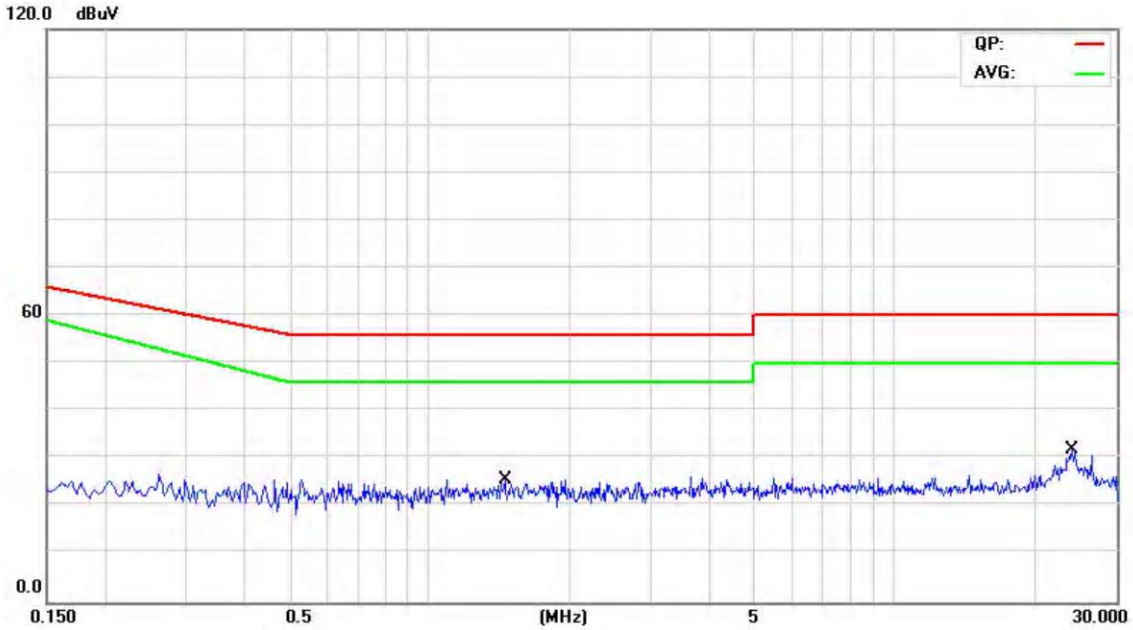
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		1.5980	8.30	9.78	18.08	56.00	-37.92	QP
2		1.5980	5.32	9.78	15.10	46.00	-30.90	AVG
3		24.5540	15.72	10.45	26.17	60.00	-33.83	QP
4	*	24.5540	9.59	10.45	20.04	50.00	-29.96	AVG

Neutral Line:
Level



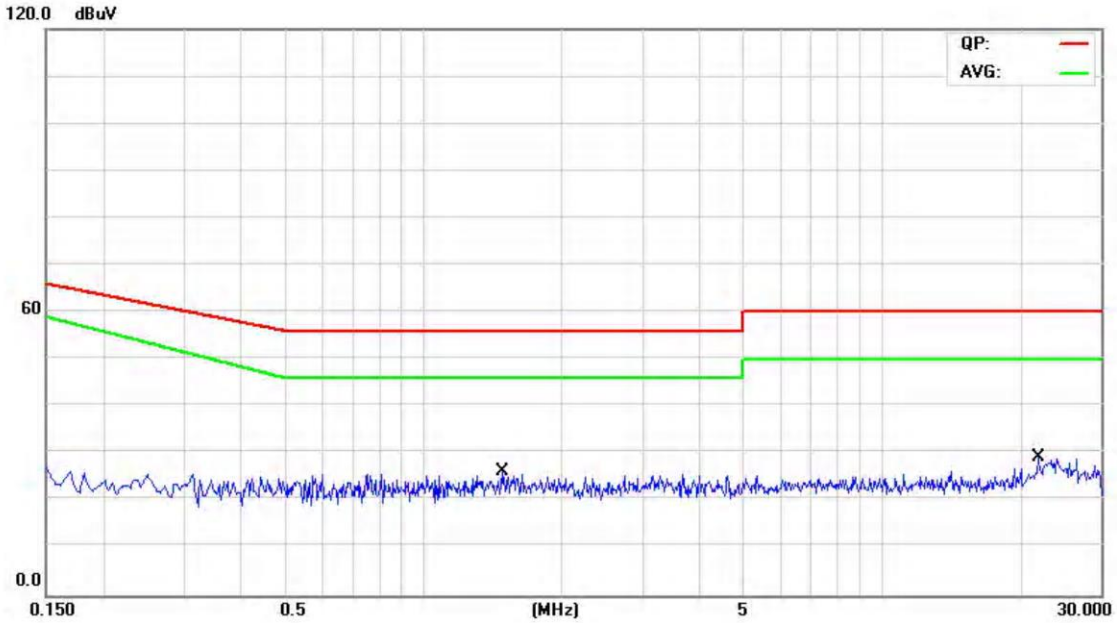
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		1.3060	8.29	9.72	18.01	56.00	-37.99	QP
2		1.3060	5.28	9.72	15.00	46.00	-31.00	AVG
3		24.2180	19.20	10.44	29.64	60.00	-30.36	QP
4	*	24.2180	12.93	10.44	23.37	50.00	-26.63	AVG

TM-2005JT
Live Line:
Level



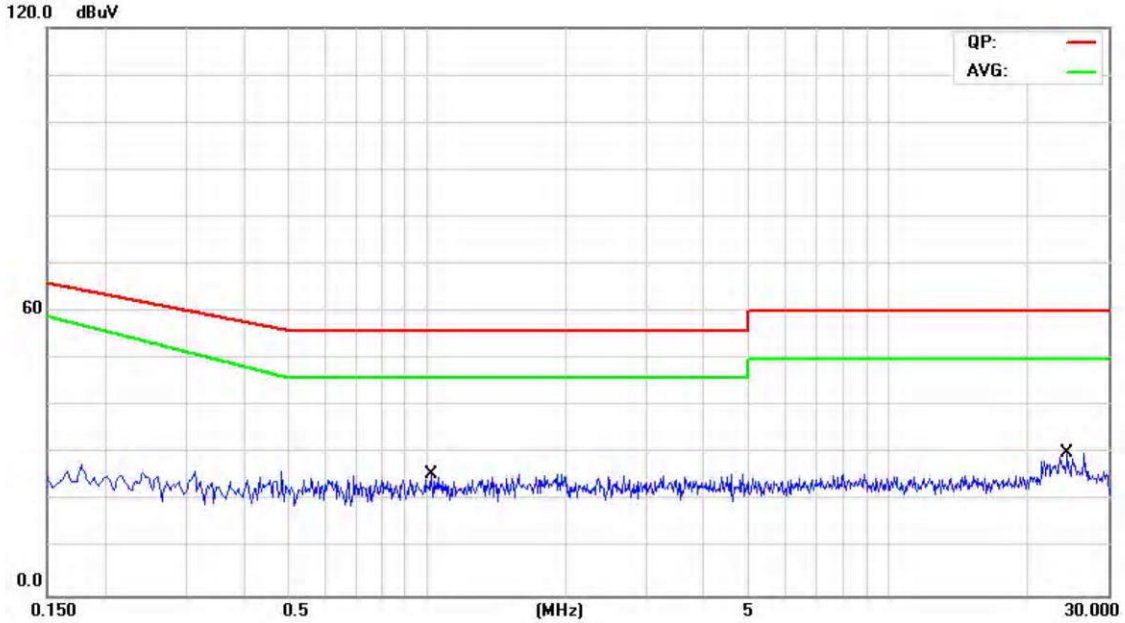
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		1.4540	8.02	9.75	17.77	56.00	-38.23	QP
2		1.4540	5.29	9.75	15.04	46.00	-30.96	AVG
3		24.0820	16.87	10.44	27.31	60.00	-32.69	QP
4	*	24.0820	10.80	10.44	21.24	50.00	-28.76	AVG

Neutral Line:
Level



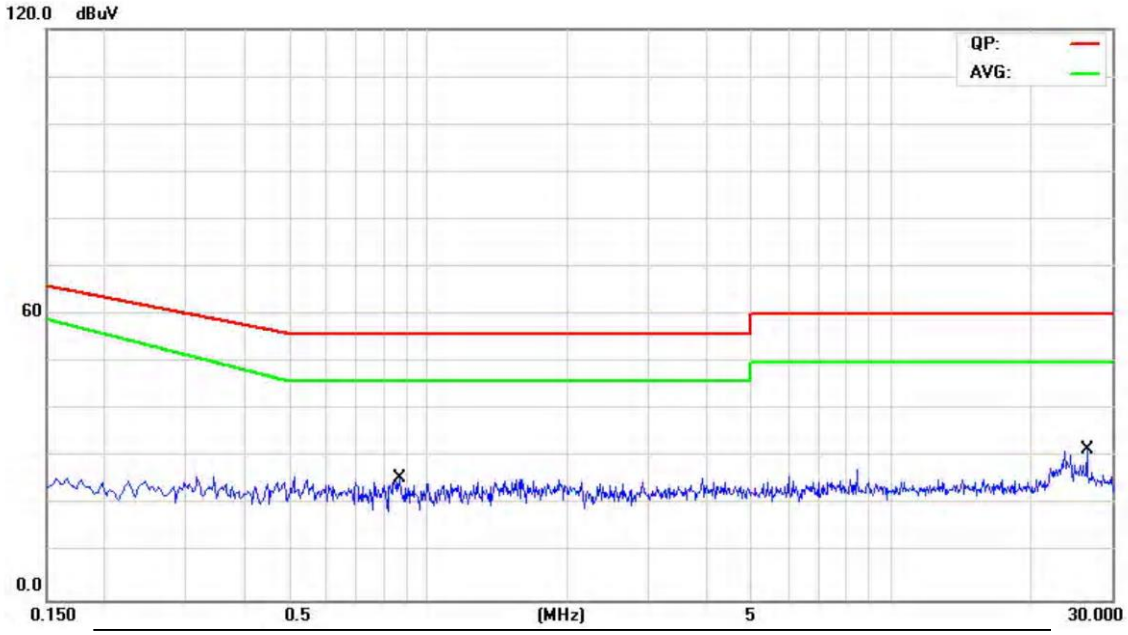
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		1.4860	8.20	9.76	17.96	56.00	-38.04	QP
2	*	1.4860	5.36	9.76	15.12	46.00	-30.88	AVG
3		21.8860	11.39	10.40	21.79	60.00	-38.21	QP
4		21.8860	6.39	10.40	16.79	50.00	-33.21	AVG

TM-2006FJ
Live Line:
Level



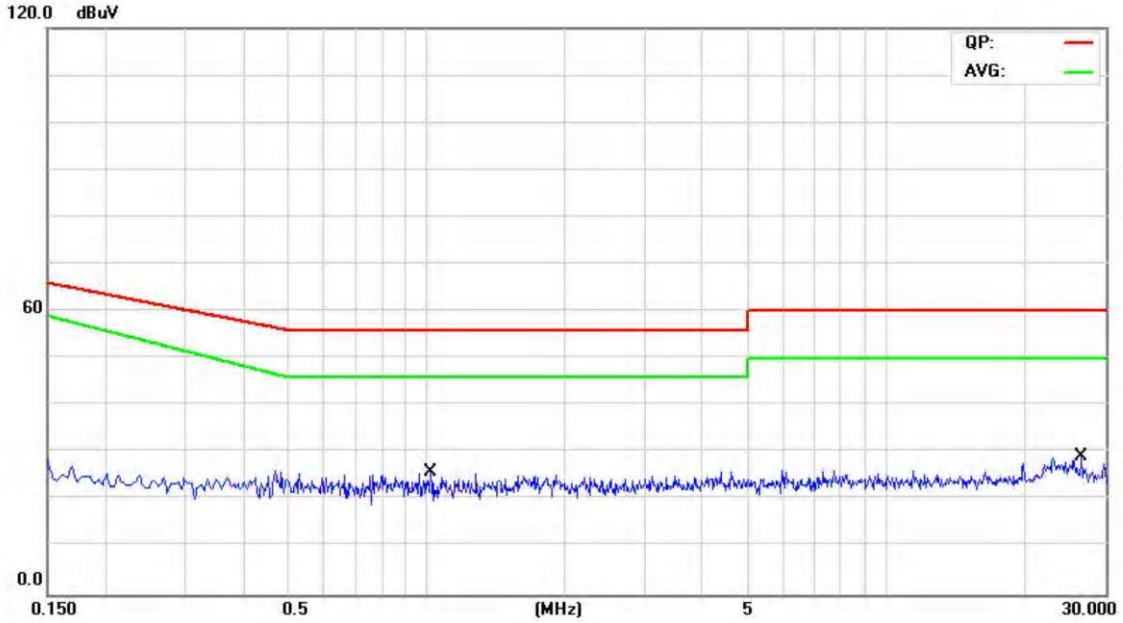
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		1.0260	8.20	9.66	17.86	56.00	-38.14	QP
2		1.0260	5.36	9.66	15.02	46.00	-30.98	AVG
3		24.4620	16.81	10.44	27.25	60.00	-32.75	QP
4	*	24.4620	11.22	10.44	21.66	50.00	-28.34	AVG

Neutral Line:
Level



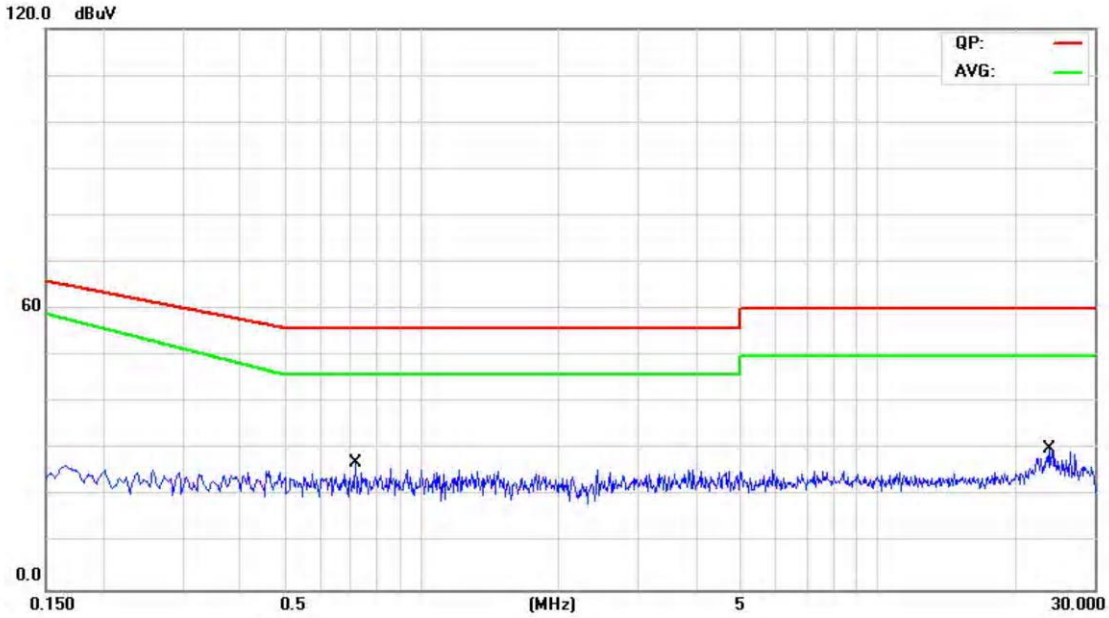
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.8700	8.30	9.69	17.99	56.00	-38.01	QP
2		0.8700	5.46	9.69	15.15	46.00	-30.85	AVG
3		26.4900	17.80	10.28	28.08	60.00	-31.92	QP
4	*	26.4900	14.22	10.28	24.50	50.00	-25.50	AVG

TM-2006JT
Live Line:
Level



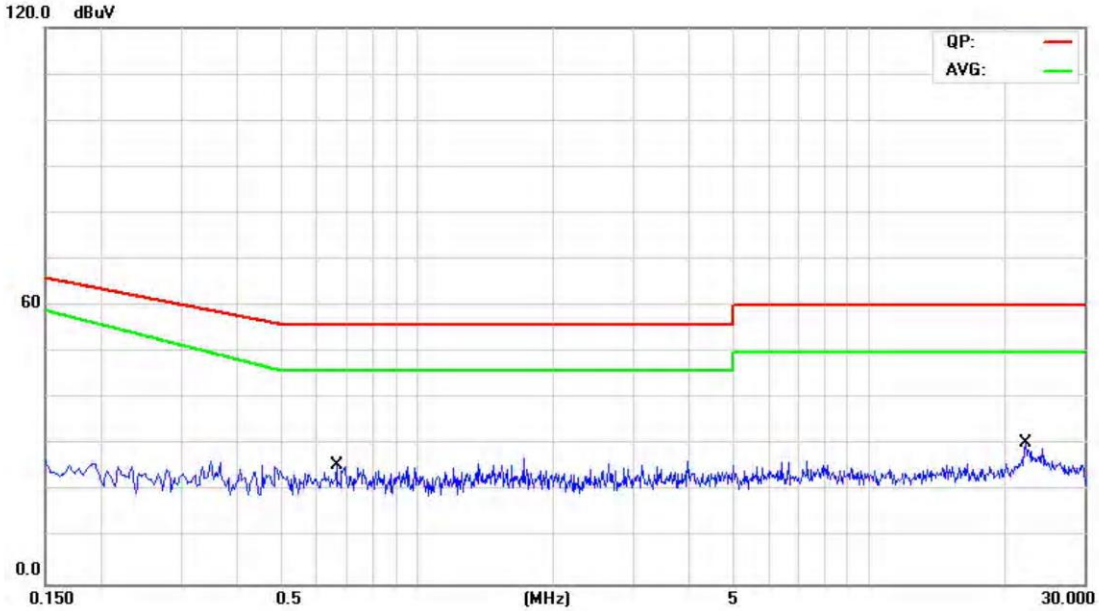
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		1.0260	8.20	9.66	17.86	56.00	-38.14	QP
2		1.0260	5.34	9.66	15.00	46.00	-31.00	AVG
3		26.6100	16.40	10.26	26.66	60.00	-33.34	QP
4	*	26.6100	12.22	10.26	22.48	50.00	-27.52	AVG

Neutral Line:
Level



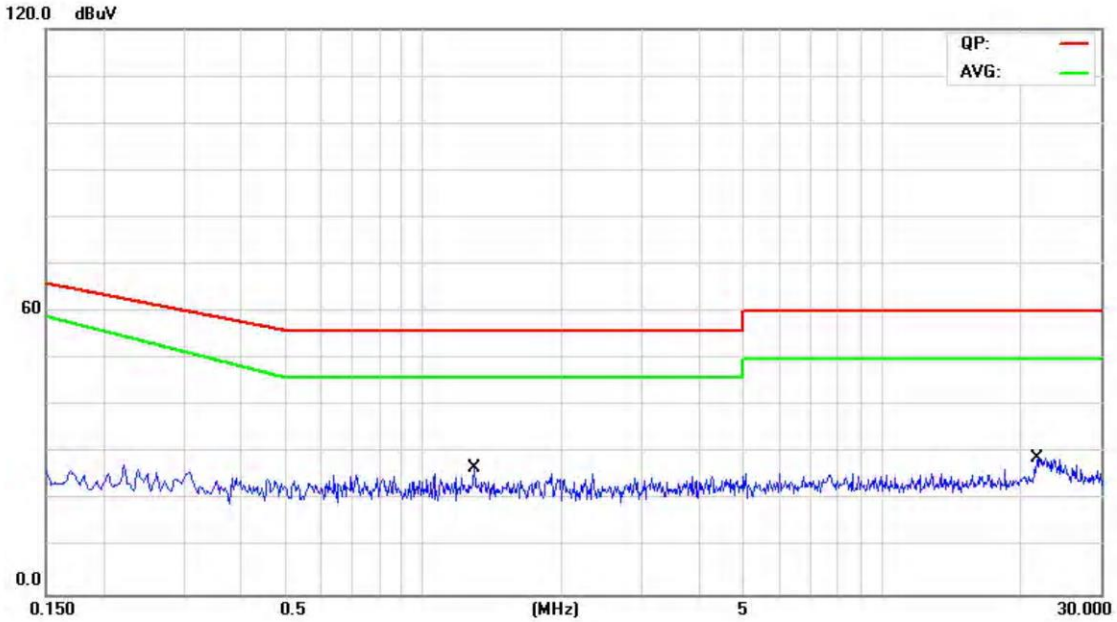
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.7180	8.57	9.74	18.31	56.00	-37.69	QP
2	*	0.7180	5.42	9.74	15.16	46.00	-30.84	AVG
3		23.7900	12.70	10.44	23.14	60.00	-36.86	QP
4		23.7900	7.27	10.44	17.71	50.00	-32.29	AVG

TM-2009FJ
Live Line:
Level



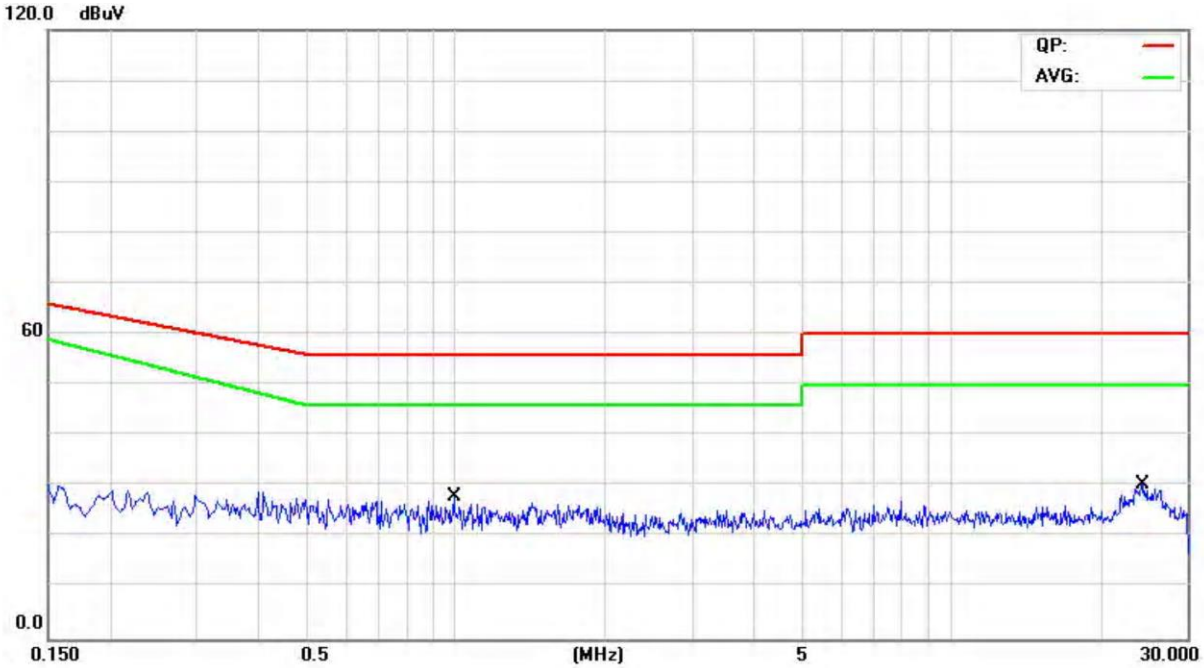
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.6620	8.57	9.74	18.31	56.00	-37.69	QP
2	*	0.6620	5.47	9.74	15.21	46.00	-30.79	AVG
3		22.2700	12.97	10.42	23.39	60.00	-36.61	QP
4		22.2700	7.21	10.42	17.63	50.00	-32.37	AVG

Neutral Line:
Level



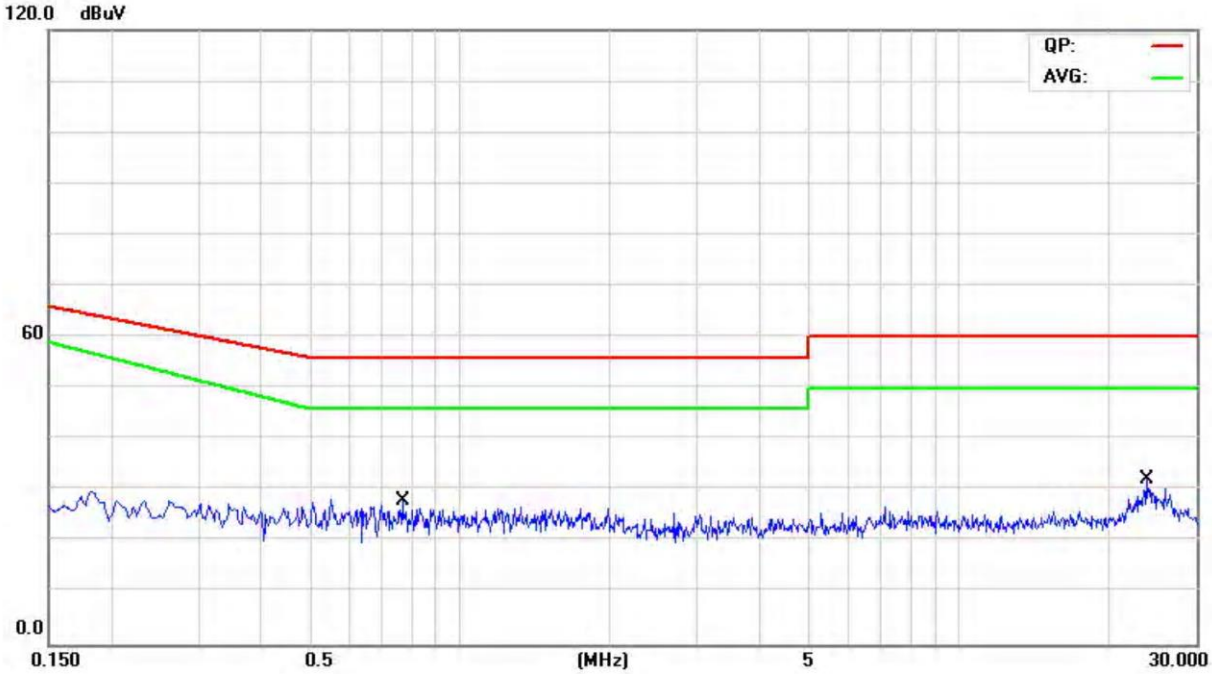
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		1.2940	8.11	9.71	17.82	56.00	-38.18	QP
2	*	1.2940	5.26	9.71	14.97	46.00	-31.03	AVG
3		21.8780	12.45	10.40	22.85	60.00	-37.15	QP
4		21.8780	7.15	10.40	17.55	50.00	-32.45	AVG

TM-2015T
Live Line:
Level



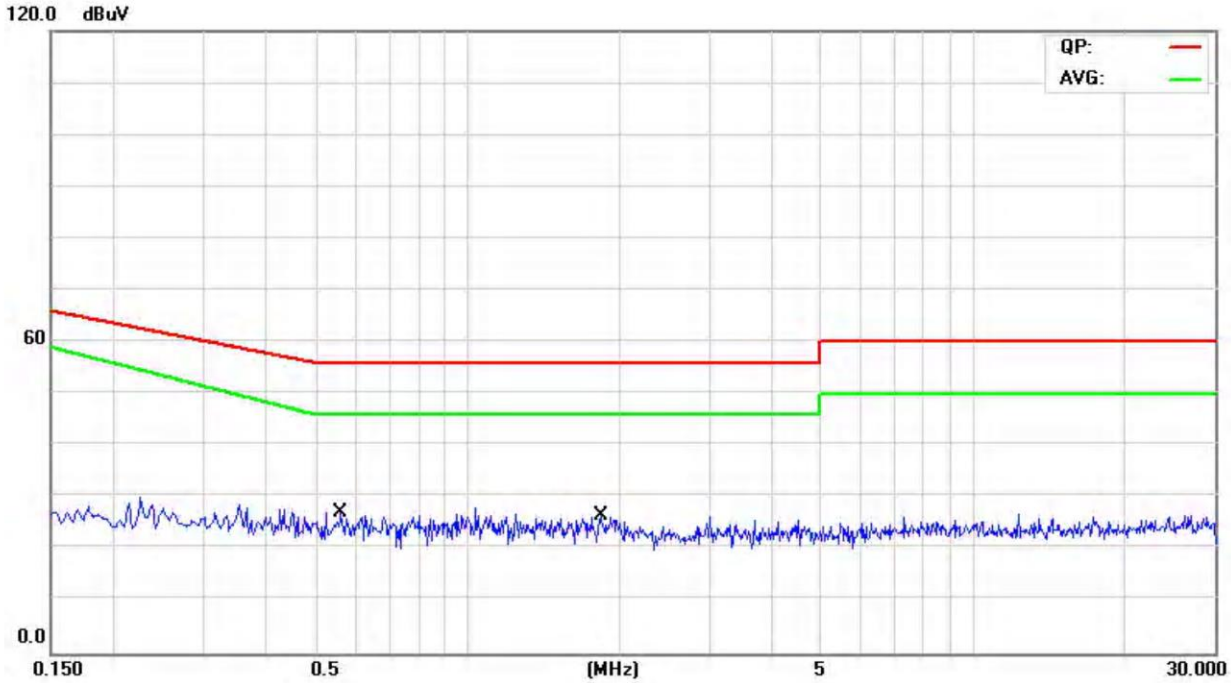
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.9940	9.71	10.40	20.11	56.00	-35.89	QP
2	*	0.9940	6.48	10.40	16.88	46.00	-29.12	AVG
3		24.4580	16.73	10.57	27.30	60.00	-32.70	QP
4		24.4580	10.06	10.57	20.63	50.00	-29.37	AVG

Neutral Line:
Level



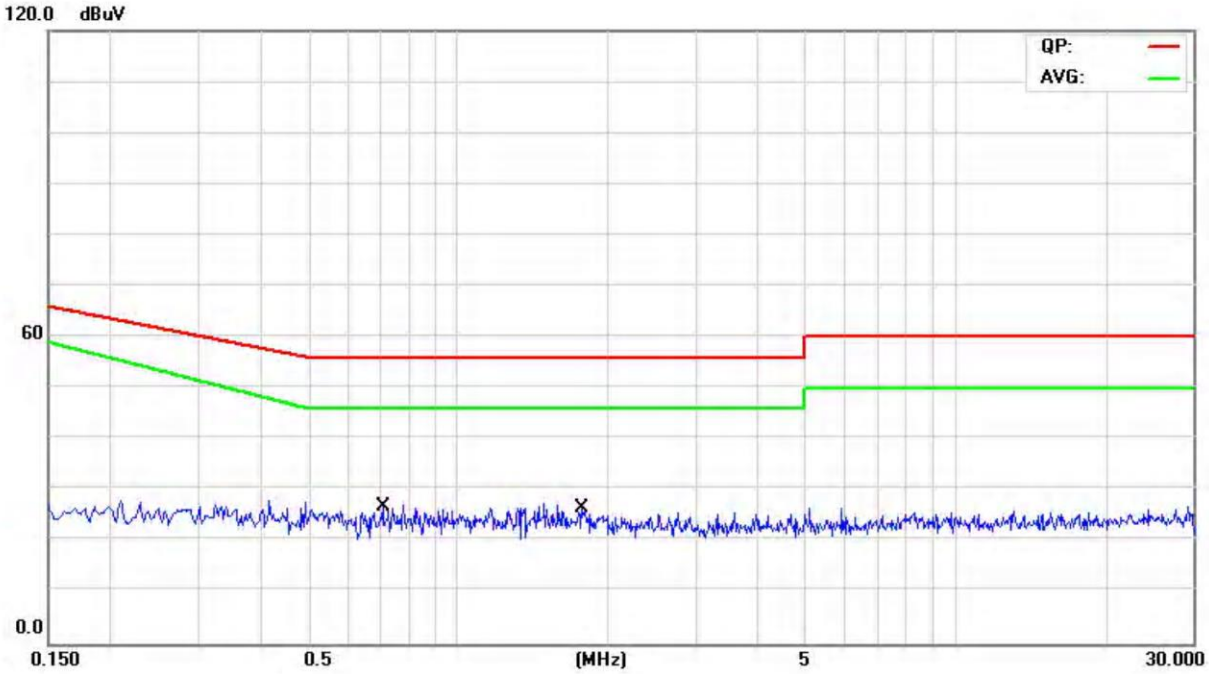
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.7700	10.20	10.37	20.57	56.00	-35.43	QP
2	*	0.7700	6.91	10.37	17.28	46.00	-28.72	AVG
3		23.8860	14.14	10.56	24.70	60.00	-35.30	QP
4		23.8860	8.09	10.56	18.65	50.00	-31.35	AVG

TM-2016T
Live Line:
Level



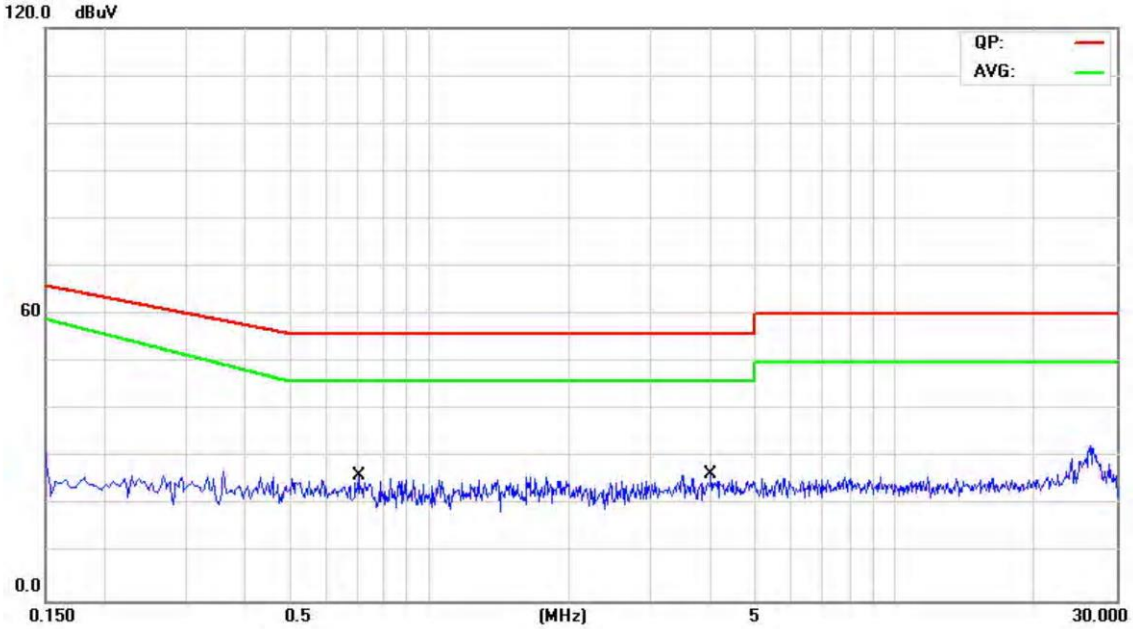
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.5620	10.23	10.48	20.71	56.00	-35.29	QP
2	*	0.5620	6.88	10.48	17.36	46.00	-28.64	AVG
3		1.8300	8.65	10.42	19.07	56.00	-36.93	QP
4		1.8300	5.66	10.42	16.08	46.00	-29.92	AVG

Neutral Line:
Level



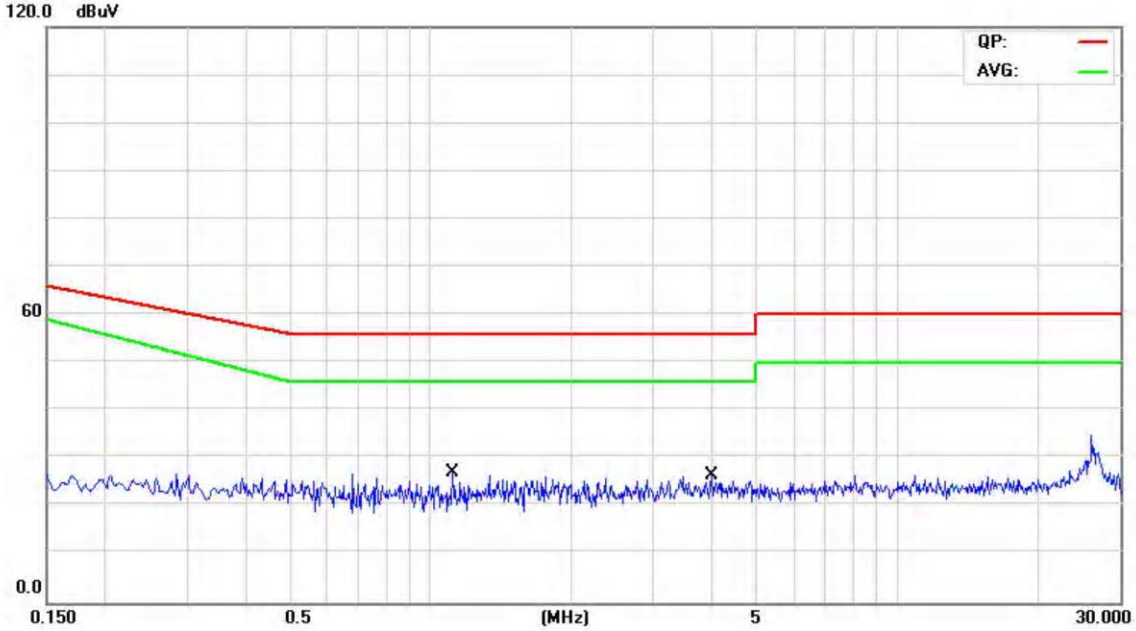
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.7060	10.01	10.36	20.37	56.00	-35.63	QP
2	*	0.7060	6.61	10.36	16.97	46.00	-29.03	AVG
3		1.7780	8.71	10.33	19.04	56.00	-36.96	QP
4		1.7780	5.65	10.33	15.98	46.00	-30.02	AVG

TM-2019
Live Line:
Level



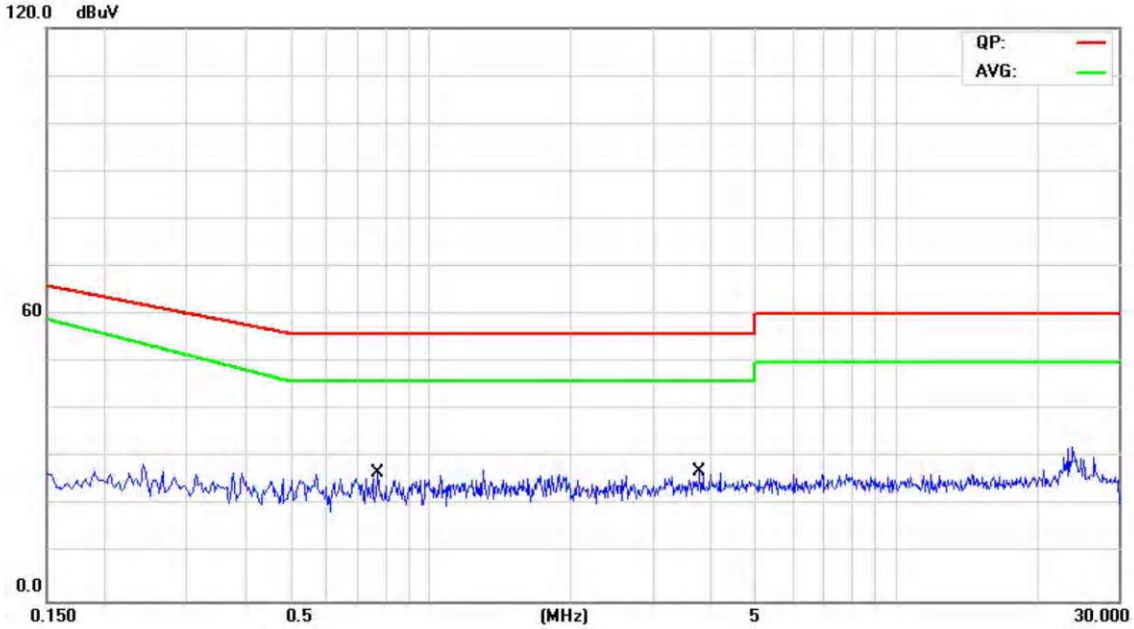
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.7060	8.55	10.46	19.01	56.00	-36.99	QP
2	*	0.7060	5.60	10.46	16.06	46.00	-29.94	AVG
3		4.0460	9.22	10.51	19.73	56.00	-36.27	QP
4		4.0460	4.59	10.51	15.10	46.00	-30.90	AVG

Neutral Line:
Level



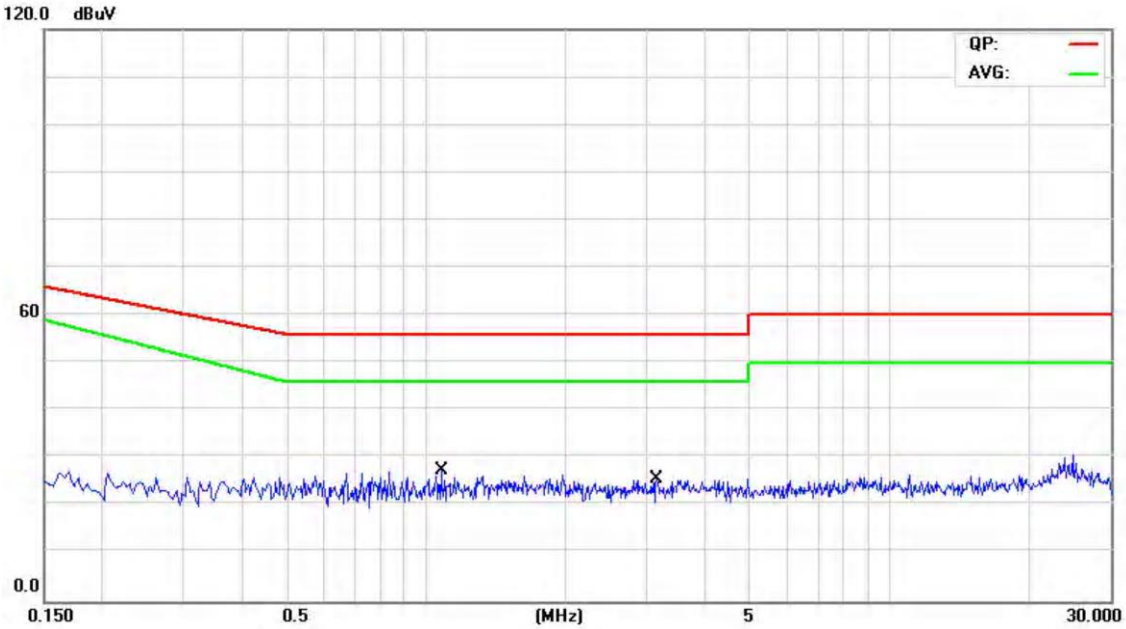
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		1.1140	8.40	10.36	18.76	56.00	-37.24	QP
2	*	1.1140	5.48	10.36	15.84	46.00	-30.16	AVG
3		3.9860	9.17	10.28	19.45	56.00	-36.55	QP
4		3.9860	4.58	10.28	14.86	46.00	-31.14	AVG

TM-2020T
Live Line:
Level



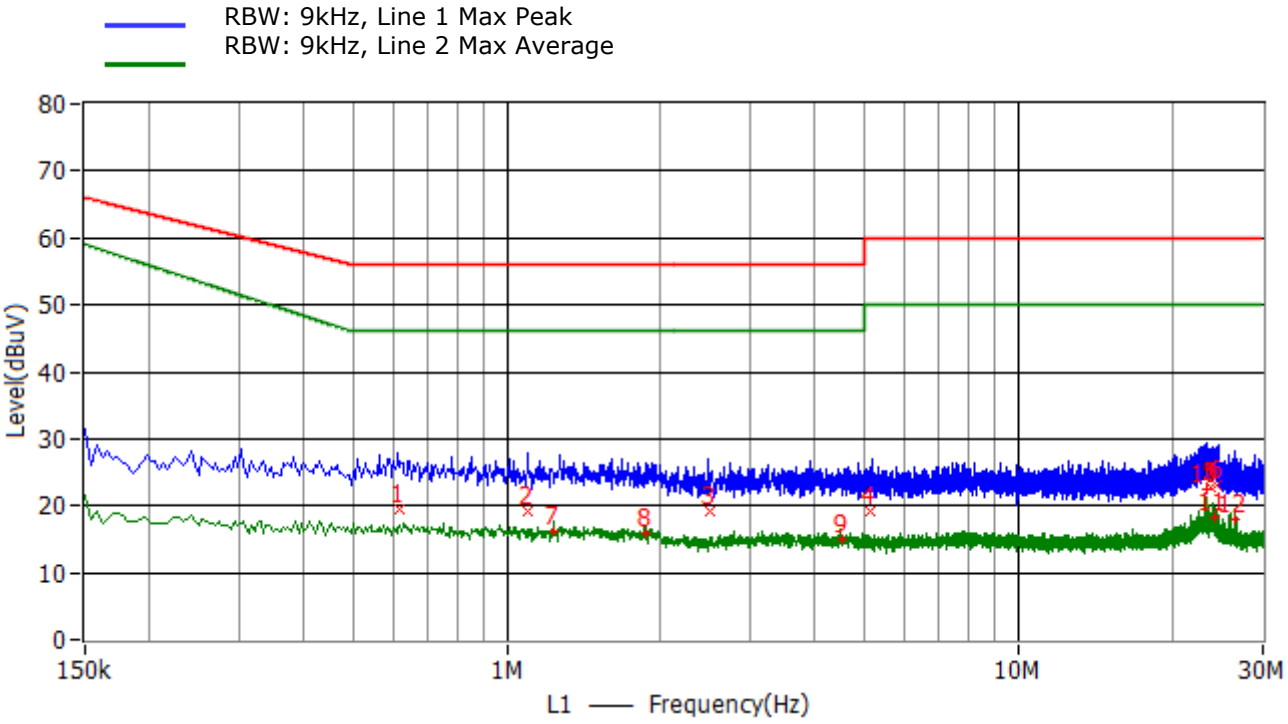
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.7740	8.48	10.45	18.93	56.00	-37.07	QP
2	*	0.7740	5.54	10.45	15.99	46.00	-30.01	AVG
3		3.7860	9.20	10.49	19.69	56.00	-36.31	QP
4		3.7860	4.62	10.49	15.11	46.00	-30.89	AVG

Neutral Line:
Level



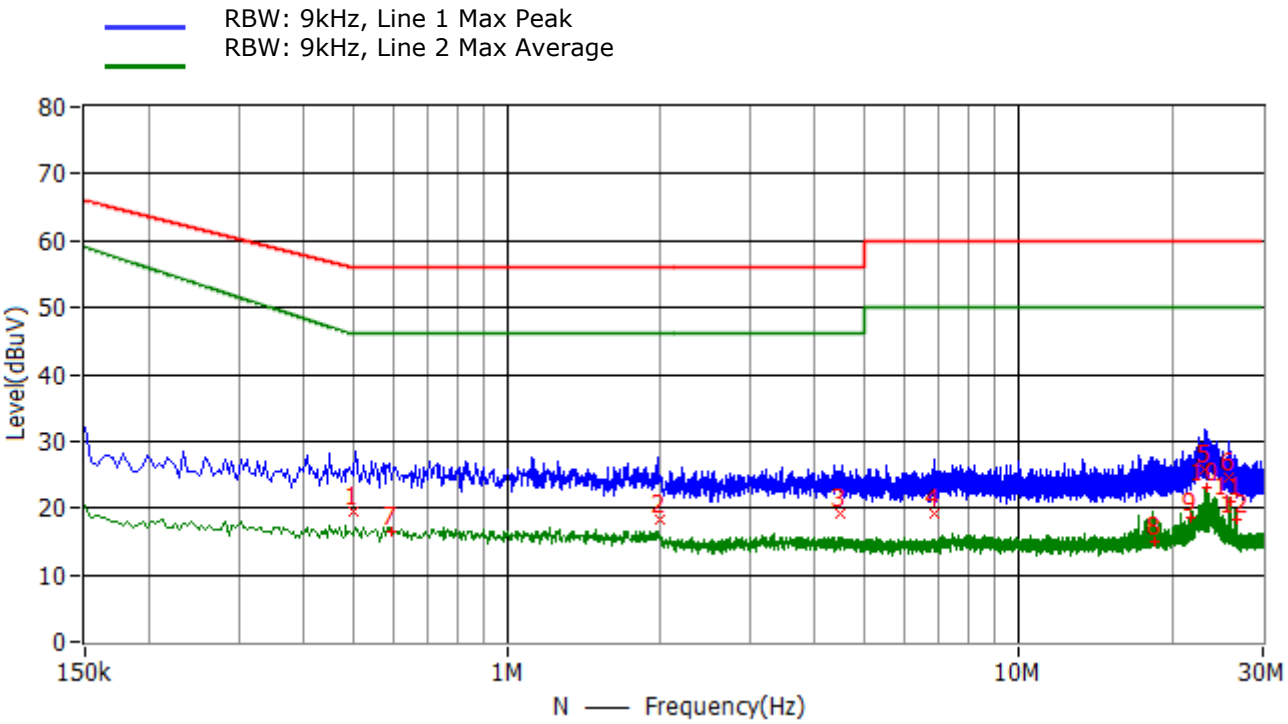
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		1.0780	8.39	10.36	18.75	56.00	-37.25	QP
2	*	1.0780	5.49	10.36	15.85	46.00	-30.15	AVG
3		3.1420	9.36	10.30	19.66	56.00	-36.34	QP
4		3.1420	4.68	10.30	14.98	46.00	-31.02	AVG

TM-2010F
Live Line:
Level



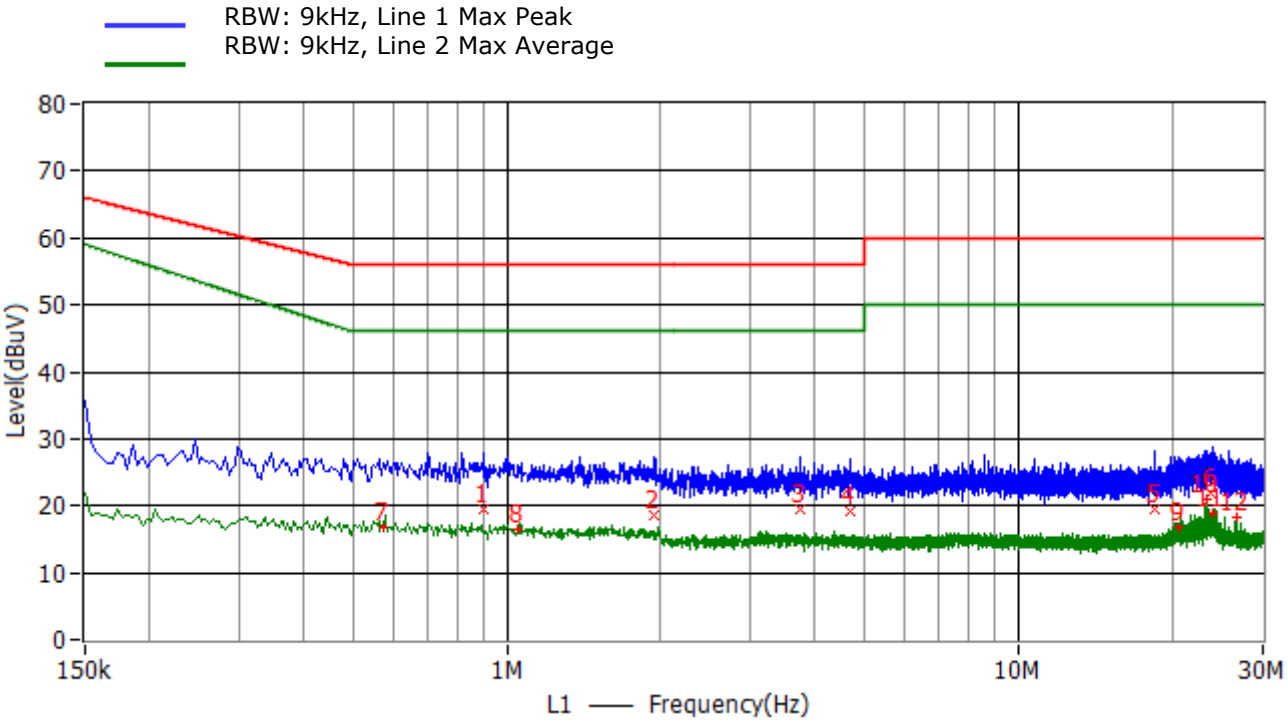
No.	Frequency	Limit dBuV	Level dBuV	Delta Limit dB	Factor dB	Detector	Phase
1	618.000 kHz	56.0	19.5	-36.5	10.5	QP	L1
2	1.102 MHz	56.0	19.1	-36.9	10.5	QP	L1
3	2.486 MHz	56.0	19.2	-36.8	10.5	QP	L1
4	5.122 MHz	60.0	19.2	-40.8	10.5	QP	L1
5	23.630 MHz	60.0	22.7	-37.3	10.6	QP	L1
6	24.458 MHz	60.0	23.0	-37.0	10.6	QP	L1
7	1.234 MHz	46.0	16.1	-29.9	10.5	CAV	L1
8	1.870 MHz	46.0	16.0	-30.0	10.5	CAV	L1
9	4.518 MHz	46.0	14.9	-31.1	10.5	CAV	L1
10	23.414 MHz	50.0	22.4	-27.6	10.6	CAV	L1
11	24.186 MHz	50.0	18.4	-31.6	10.6	CAV	L1
12	26.490 MHz	50.0	18.0	-32.0	10.6	CAV	L1

Neutral Line:
Level



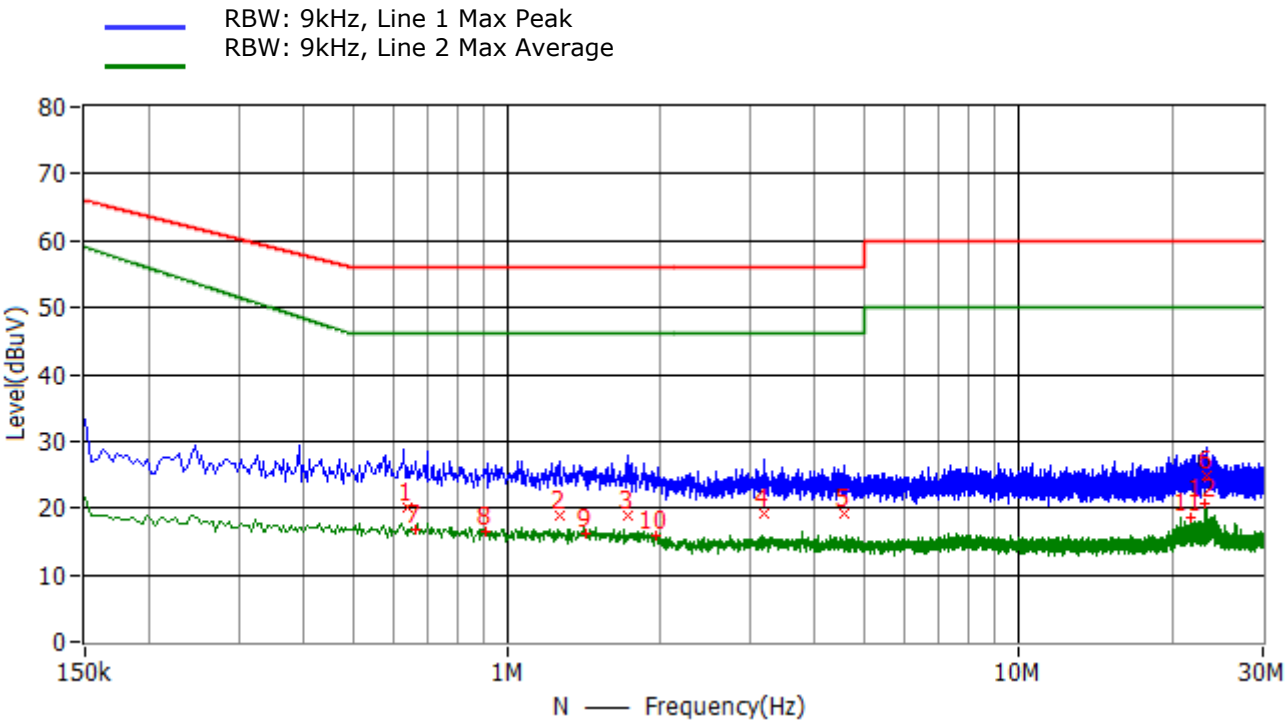
No.	Frequency	Limit dBuV	Level dBuV	Delta Limit dB	Factor dB	Detector	Phase
1	502.000 kHz	56.0	19.5	-36.5	10.4	QP	N
2	1.986 MHz	56.0	18.3	-37.7	10.4	QP	N
3	4.482 MHz	56.0	19.2	-36.8	10.4	QP	N
4	6.858 MHz	60.0	19.1	-40.9	10.4	QP	N
5	23.066 MHz	60.0	25.7	-34.3	10.6	QP	N
6	25.694 MHz	60.0	24.6	-35.4	10.7	QP	N
7	594.000 kHz	46.0	16.4	-29.6	10.4	CAV	N
8	18.370 MHz	50.0	15.0	-35.0	10.6	CAV	N
9	21.666 MHz	50.0	18.5	-31.5	10.6	CAV	N
10	23.414 MHz	50.0	23.1	-26.9	10.6	CAV	N
11	25.878 MHz	50.0	20.9	-29.1	10.7	CAV	N
12	26.614 MHz	50.0	18.2	-31.8	10.7	CAV	N

TM-2011P
Live Line:
Level



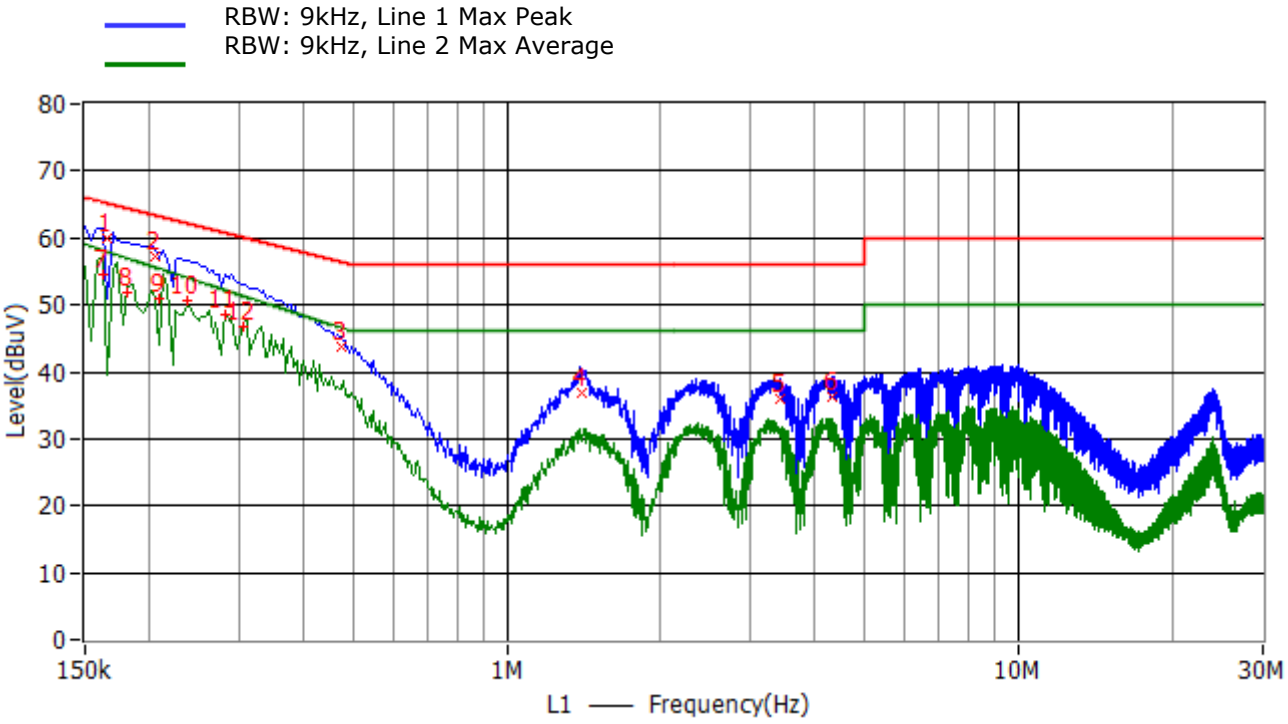
No.	Frequency	Limit dBuV	Level dBuV	Delta Limit dB	Factor dB	Detector	Phase
1	902.000 kHz	56.0	19.4	-36.6	10.4	QP	L1
2	1.938 MHz	56.0	18.6	-37.4	10.5	QP	L1
3	3.734 MHz	56.0	19.5	-36.5	10.5	QP	L1
4	4.682 MHz	56.0	19.3	-36.7	10.5	QP	L1
5	18.366 MHz	60.0	19.5	-40.5	10.7	QP	L1
6	23.710 MHz	60.0	21.8	-38.2	10.6	QP	L1
7	574.000 kHz	46.0	16.9	-29.1	10.5	CAV	L1
8	1.054 MHz	46.0	16.4	-29.6	10.5	CAV	L1
9	20.610 MHz	50.0	16.8	-33.2	10.6	CAV	L1
10	23.414 MHz	50.0	21.0	-29.0	10.6	CAV	L1
11	24.046 MHz	50.0	18.9	-31.1	10.6	CAV	L1
12	26.610 MHz	50.0	18.4	-31.6	10.6	CAV	L1

Neutral Line:
Level



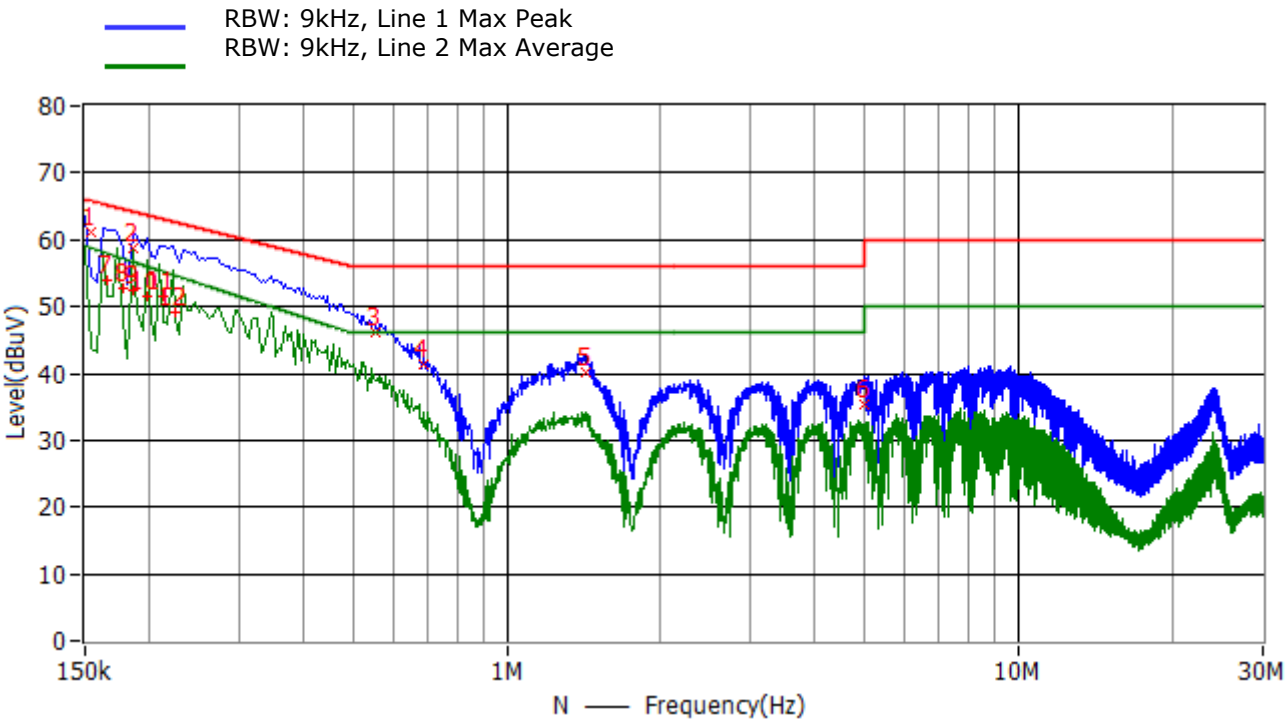
No.	Frequency	Limit dBuV	Level dBuV	Delta Limit dB	Factor dB	Detector	Phase
1	638.000 kHz	56.0	20.0	-36.0	10.4	QP	N
2	1.274 MHz	56.0	19.0	-37.0	10.4	QP	N
3	1.718 MHz	56.0	18.8	-37.2	10.4	QP	N
4	3.178 MHz	56.0	19.3	-36.7	10.4	QP	N
5	4.546 MHz	56.0	19.2	-36.8	10.4	QP	N
6	23.414 MHz	60.0	24.8	-35.2	10.6	QP	N
7	662.000 kHz	46.0	16.8	-29.2	10.4	CAV	N
8	906.000 kHz	46.0	16.5	-29.5	10.4	CAV	N
9	1.430 MHz	46.0	16.2	-29.8	10.4	CAV	N
10	1.954 MHz	46.0	15.9	-30.1	10.4	CAV	N
11	21.662 MHz	50.0	18.6	-31.4	10.6	CAV	N
12	23.130 MHz	50.0	20.6	-29.4	10.6	CAV	N

TM-2006MJ
Live Line:
Level



No.	Frequency	Limit dBuV	Level dBuV	Delta Limit dB	Factor dB	Detector	Phase
1	166.000 kHz	65.2	60.0	-5.2	10.4	QP	L1
2	206.000 kHz	63.4	57.3	-6.0	10.4	QP	L1
3	474.000 kHz	56.4	43.6	-12.9	10.4	QP	L1
4	1.398 MHz	56.0	37.0	-19.0	10.5	QP	L1
5	3.422 MHz	56.0	35.9	-20.1	10.5	QP	L1
6	4.338 MHz	56.0	36.2	-19.8	10.5	QP	L1
7	162.000 kHz	58.2	54.4	-3.7	10.4	CAV	L1
8	182.000 kHz	56.9	51.7	-5.2	10.4	CAV	L1
9	210.000 kHz	55.4	50.9	-4.5	10.4	CAV	L1
10	238.000 kHz	54.0	50.5	-3.6	10.4	CAV	L1
11	282.000 kHz	52.2	48.6	-3.6	10.4	CAV	L1
12	306.000 kHz	51.3	46.8	-4.5	10.4	CAV	L1

Neutral Line:
Level



No.	Frequency	Limit dBuV	Level dBuV	Delta Limit dB	Factor dB	Detector	Phase
1	154.000 kHz	65.8	61.0	-4.8	10.3	QP	N
2	186.000 kHz	64.2	58.6	-5.6	10.3	QP	N
3	554.000 kHz	56.0	46.1	-9.9	10.4	QP	N
4	686.000 kHz	56.0	41.2	-14.8	10.4	QP	N
5	1.422 MHz	56.0	40.1	-15.9	10.4	QP	N
6	4.986 MHz	56.0	35.5	-20.5	10.4	QP	N
7	166.000 kHz	57.9	53.8	-4.1	10.3	CAV	N
8	178.000 kHz	57.2	52.6	-4.5	10.3	CAV	N
9	186.000 kHz	56.7	52.5	-4.2	10.3	CAV	N
10	198.000 kHz	56.0	51.6	-4.4	10.3	CAV	N
11	214.000 kHz	55.2	51.5	-3.7	10.3	CAV	N
12	226.000 kHz	54.6	49.0	-5.5	10.3	CAV	N

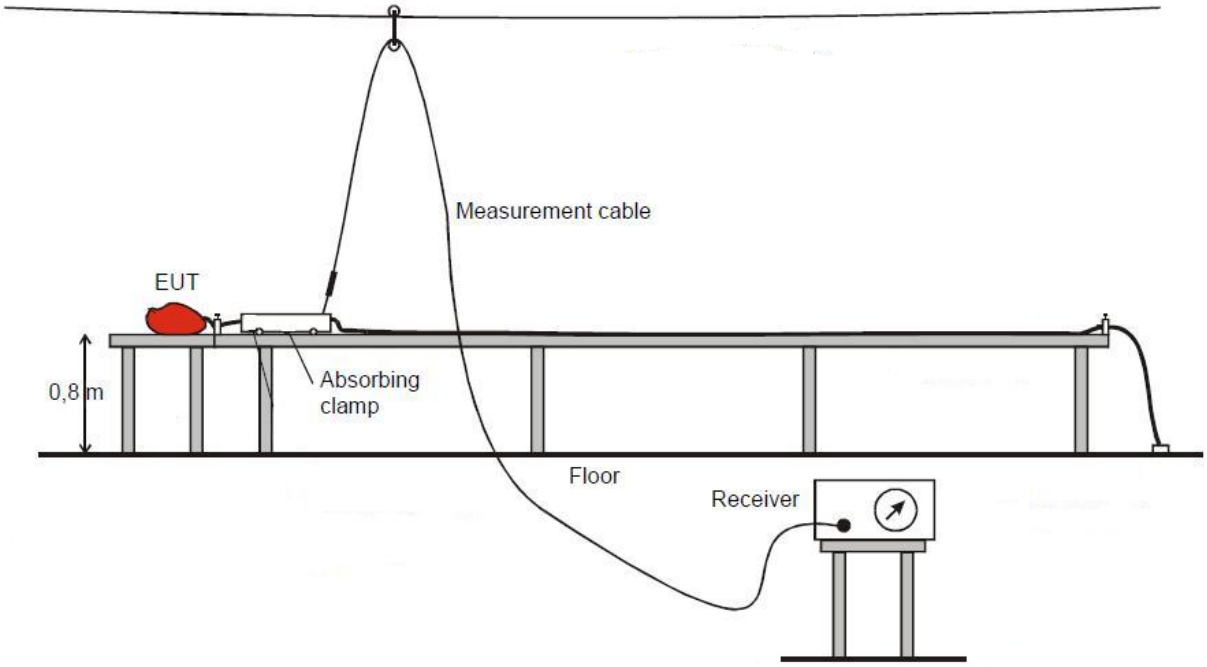
4.2 Disturbance power

This clause lays down the general requirements for the measurement of disturbance power produced at the terminals of apparatus.

4.2.1 Limits

Frequency range MHz	Limit dB (pW)	
	Quasi-peak	Average
30 to 300	45 to 55	35 to 45
Note1: Increasing linearly with the frequency from.		

4.2.2 Measurement procedure



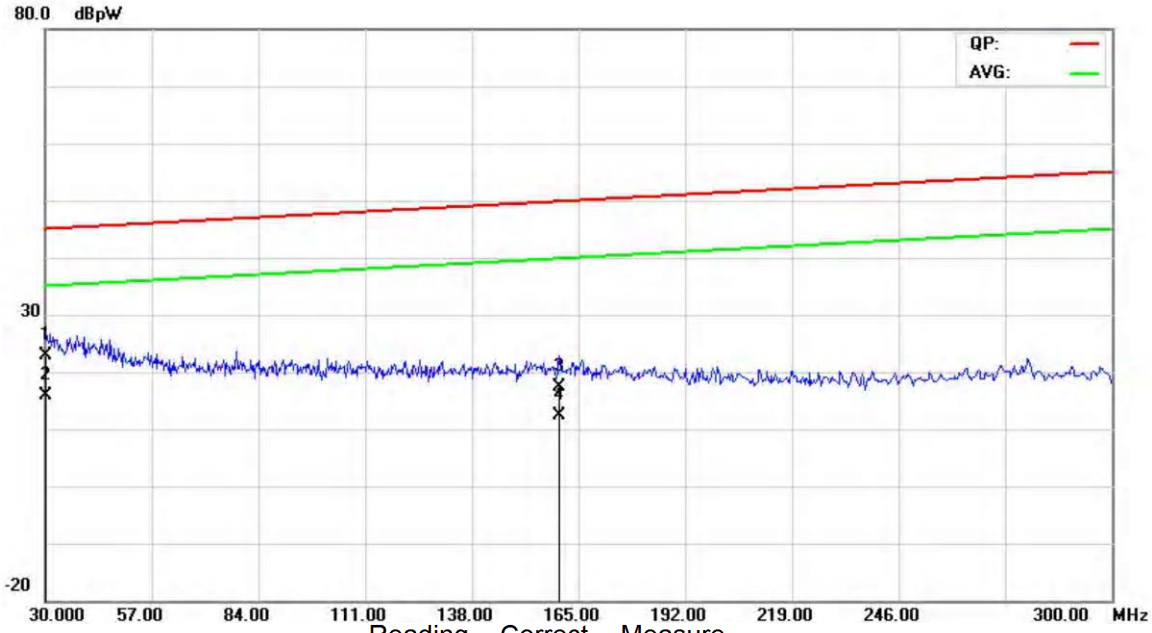
The test configuration corresponds to the standard EN IEC 55014-1. The equipment under test is placed on a non metallic table with 0,8 m high. The lead to be measured is stretched horizontally in a straight line, to permit variation in position of the absorbing clamp along the lead to find the maximum indication. The lead shall be at least length of 6 meter. Before get the final emission results with quasi-peak(QP) detector and average(AVG) detector, a pre-scan was performed with the peak(PK) detector to find out the maximum emission data plots of the EUT. The absorbing clamp is placed around the lead.

4.2.3 Measurement uncertainty

Ulab(cond) = 4.08 dB at confidence of 95%, k=2

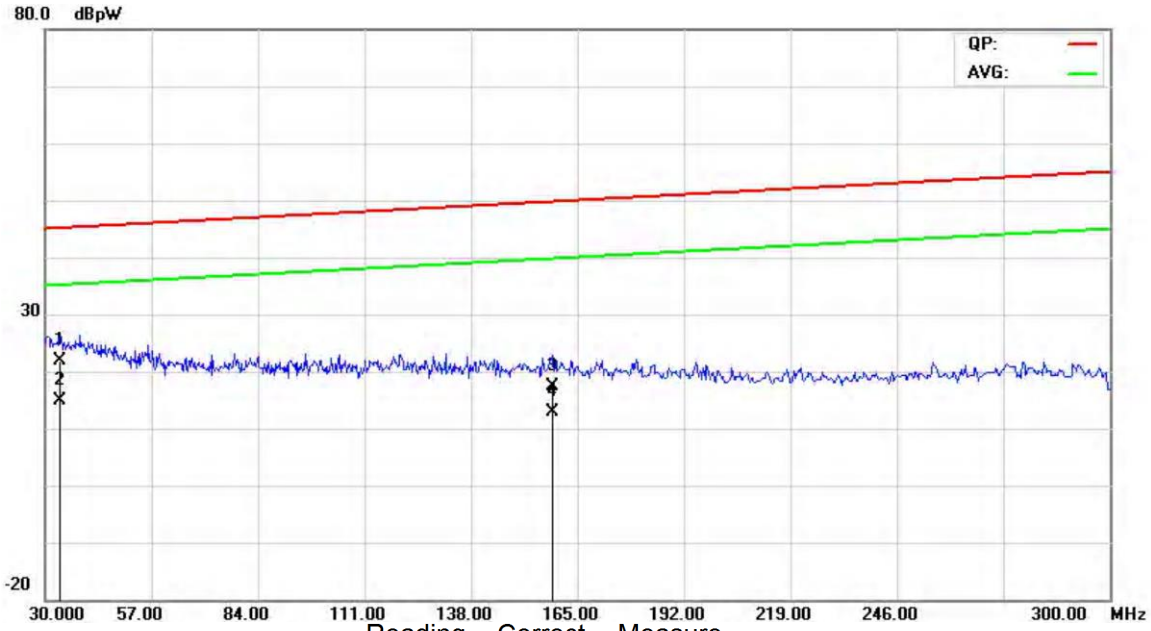
4.2.4 Results

TM-2001FJ
Level



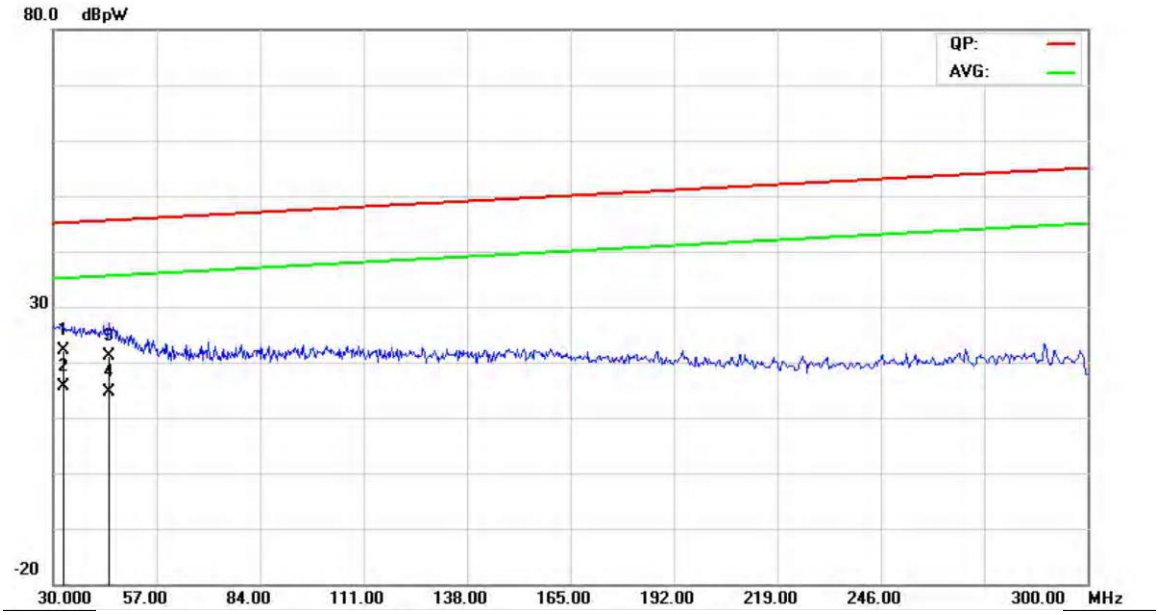
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		30.2800	-3.32	26.11	22.79	45.01	-22.22	QP
2	*	30.2800	-10.11	26.11	16.00	35.01	-19.01	AVG
3		160.1600	-3.25	20.66	17.41	49.82	-32.41	QP
4		160.1600	-8.16	20.66	12.50	39.82	-27.32	AVG

TM-2001JT
Level



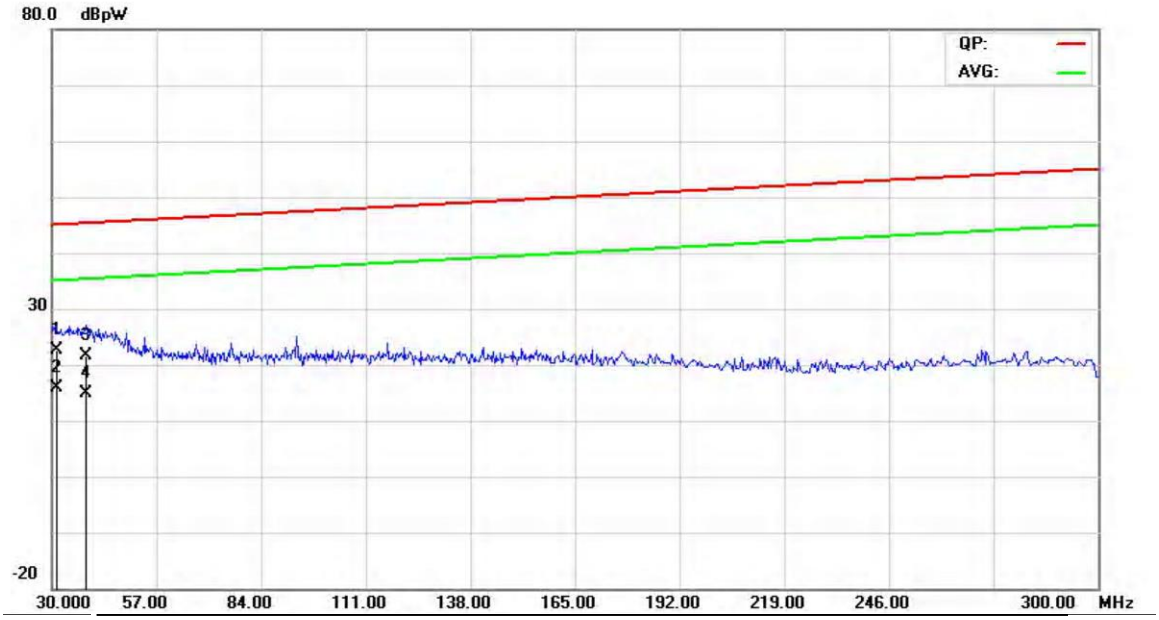
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		33.8800	-3.59	25.45	21.86	45.14	-23.28	QP
2	*	33.8800	-10.49	25.45	14.96	35.14	-20.18	AVG
3		158.5200	-3.24	20.69	17.45	49.76	-32.31	QP
4		158.5200	-7.89	20.69	12.80	39.76	-26.96	AVG

TM-2005FJ
Level



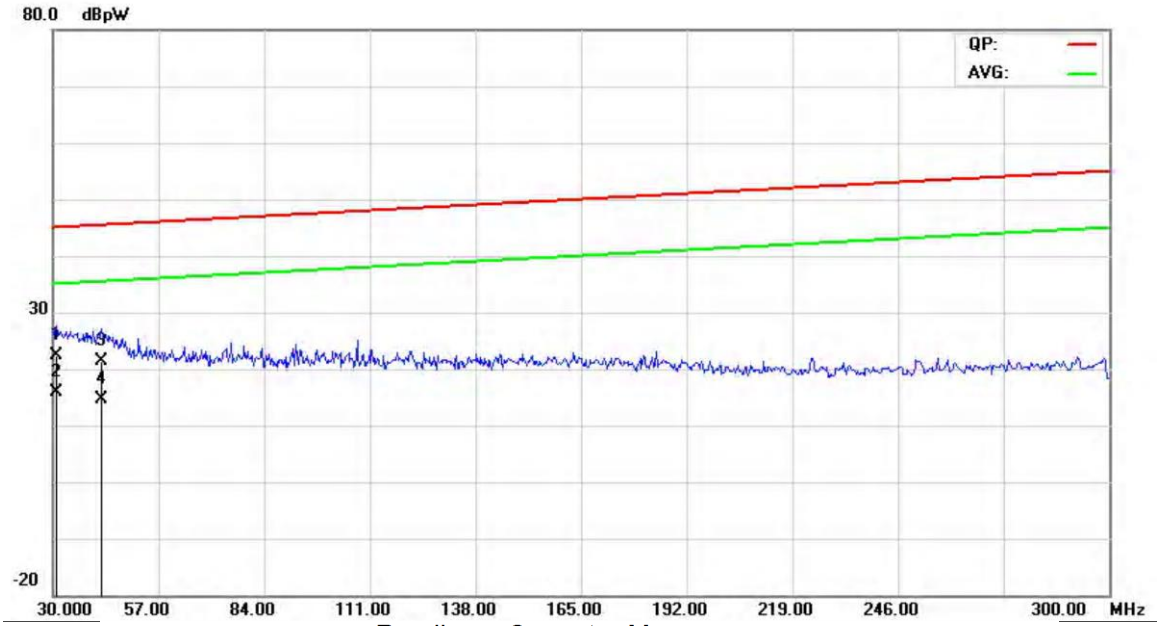
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		32.8000	-3.52	25.65	22.13	45.10	-22.97	QP
2	*	32.8000	-10.14	25.65	15.51	35.10	-19.59	AVG
3		44.6000	-3.47	24.68	21.21	45.54	-24.33	QP
4		44.6000	-10.10	24.68	14.58	35.54	-20.96	AVG

TM-2005JT
Level



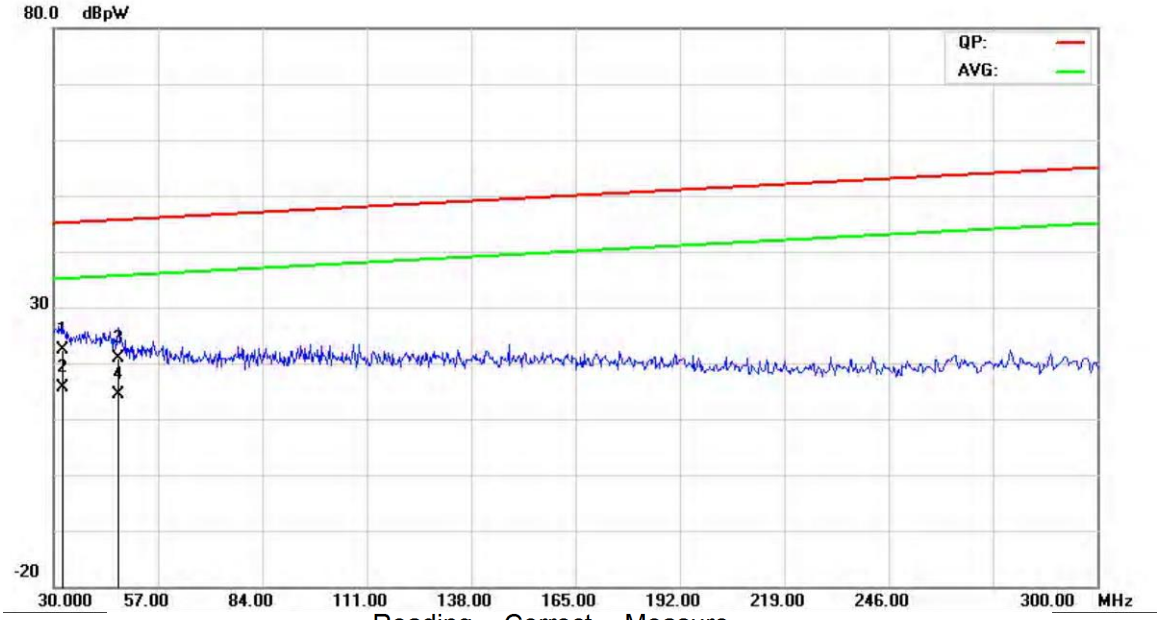
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		31.1200	-3.45	25.96	22.51	45.04	-22.53	QP
2	*	31.1200	-10.11	25.96	15.85	35.04	-19.19	AVG
3		38.9200	-3.45	25.03	21.58	45.33	-23.75	QP
4		38.9200	-10.07	25.03	14.96	35.33	-20.37	AVG

TM-2006FJ
Level



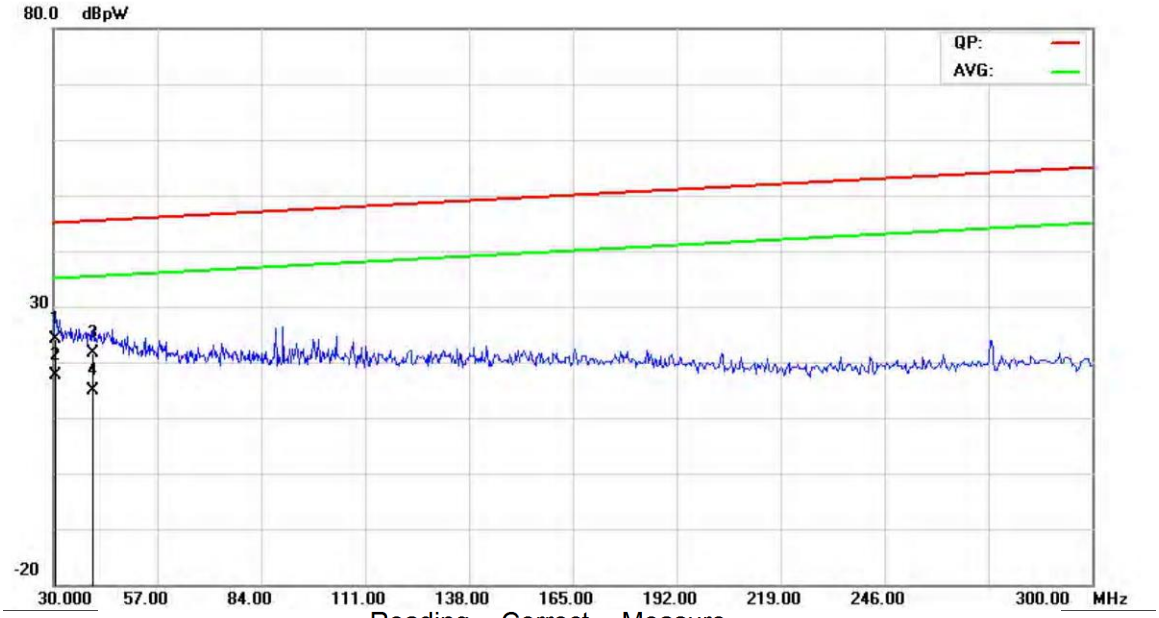
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		31.0000	-3.48	25.98	22.50	45.04	-22.54	QP
2	*	31.0000	-10.06	25.98	15.92	35.04	-19.12	AVG
3		42.5200	-3.52	24.81	21.29	45.46	-24.17	QP
4		42.5200	-10.13	24.81	14.68	35.46	-20.78	AVG

TM-2006JT
Level



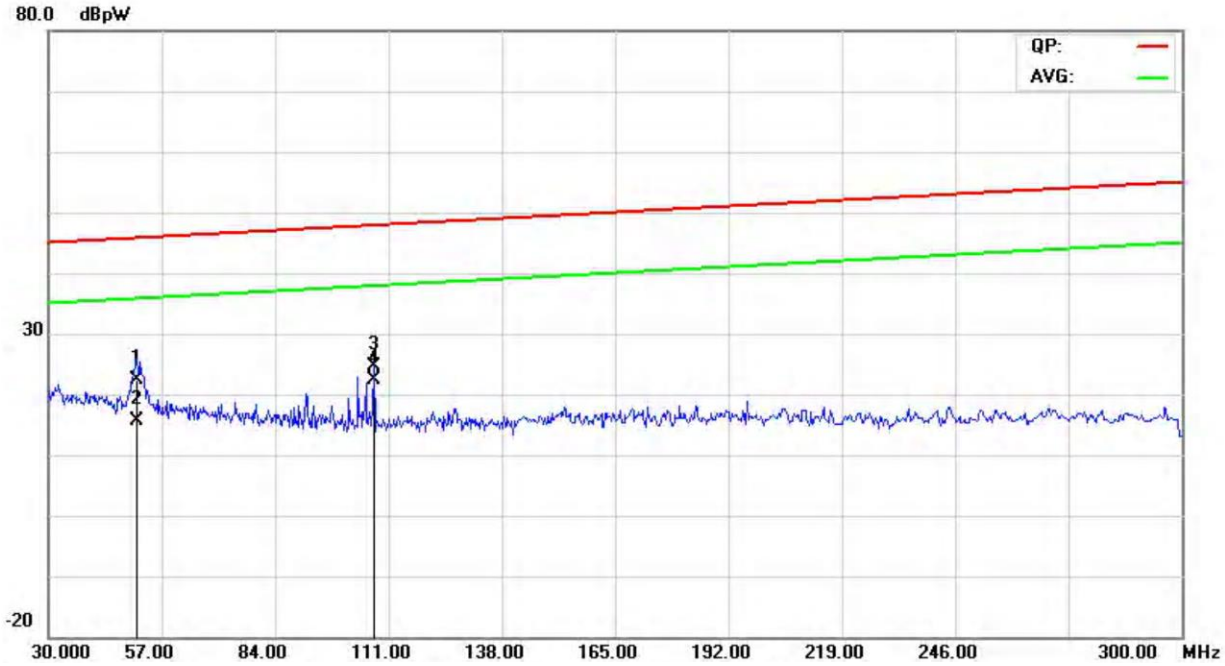
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		32.3600	-3.42	25.73	22.31	45.09	-22.78	QP
2	*	32.3600	-10.09	25.73	15.64	35.09	-19.45	AVG
3		46.7600	-3.05	23.96	20.91	45.62	-24.71	QP
4		46.7600	-9.61	23.96	14.35	35.62	-21.27	AVG

TM-2009FJ
Level



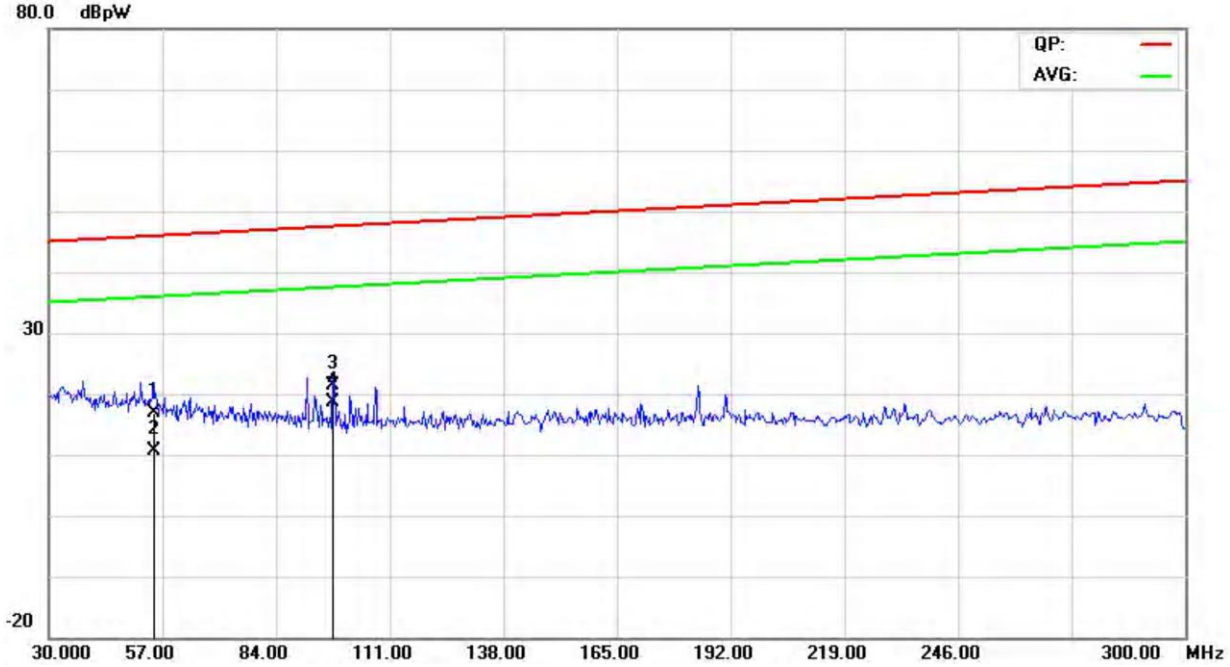
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		30.6000	-1.87	26.05	24.18	45.02	-20.84	QP
2	*	30.6000	-8.42	26.05	17.63	35.02	-17.39	AVG
3		40.2800	-3.39	24.95	21.56	45.38	-23.82	QP
4		40.2800	-10.04	24.95	14.91	35.38	-20.47	AVG

TM-2015T
Level



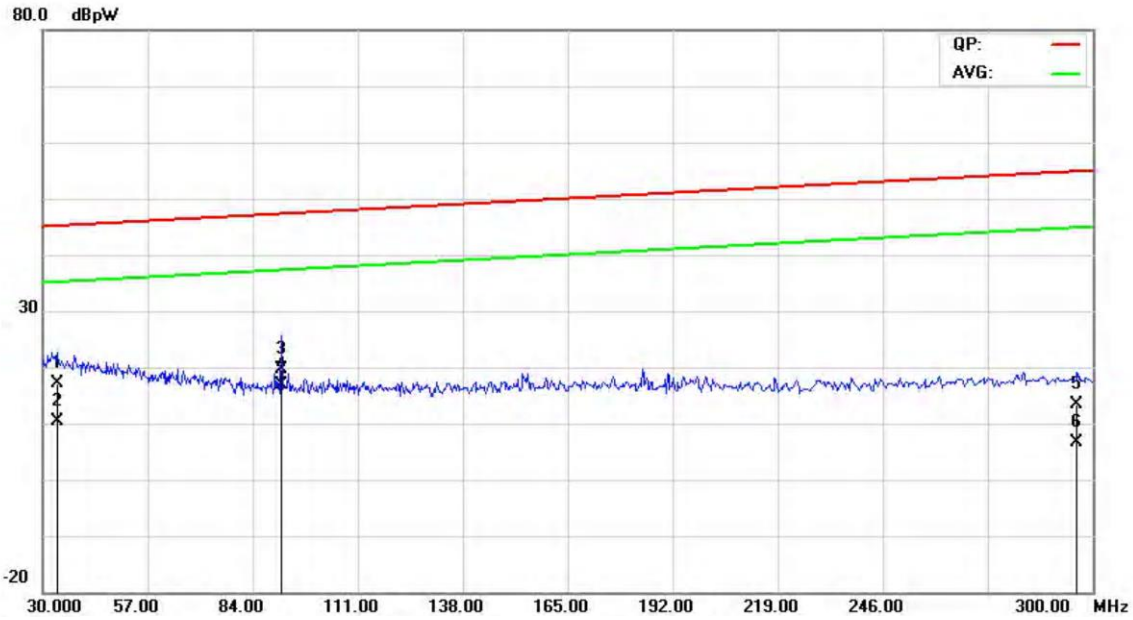
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		51.1200	3.93	18.51	22.44	45.78	-23.34	QP
2		51.1200	-2.91	18.51	15.60	35.78	-20.18	AVG
3		107.7200	8.10	16.49	24.59	47.88	-23.29	QP
4	*	107.7200	5.81	16.49	22.30	37.88	-15.58	AVG

TM-2016T
Level



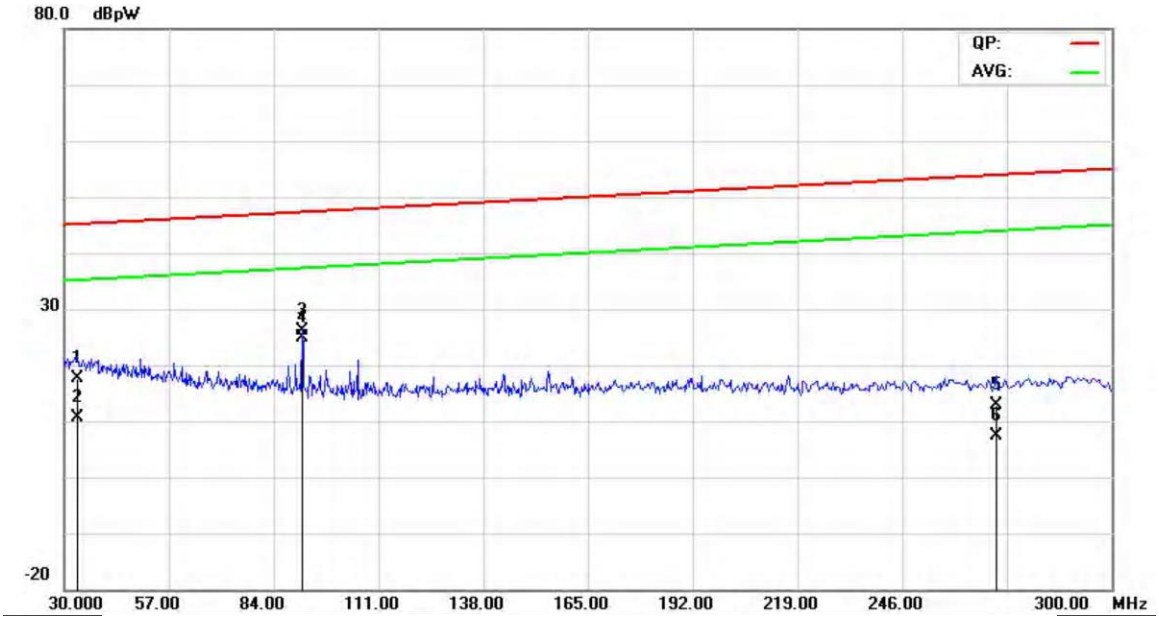
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		55.0400	-1.23	18.20	16.97	45.93	-28.96	QP
2		55.0400	-7.50	18.20	10.70	35.93	-25.23	AVG
3		97.6800	4.70	16.57	21.27	47.51	-26.24	QP
4	*	97.6800	2.13	16.57	18.70	37.51	-18.81	AVG

TM-2019
Level



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		33.8400	-3.01	20.03	17.02	45.14	-28.12	QP
2		33.8400	-9.63	20.03	10.40	35.14	-24.74	AVG
3		91.4000	3.46	16.19	19.65	47.27	-27.62	QP
4	*	91.4000	0.71	16.19	16.90	37.27	-20.37	AVG
5		296.0800	-3.48	16.76	13.28	54.85	-41.57	QP
6		296.0800	-10.16	16.76	6.60	44.85	-38.25	AVG

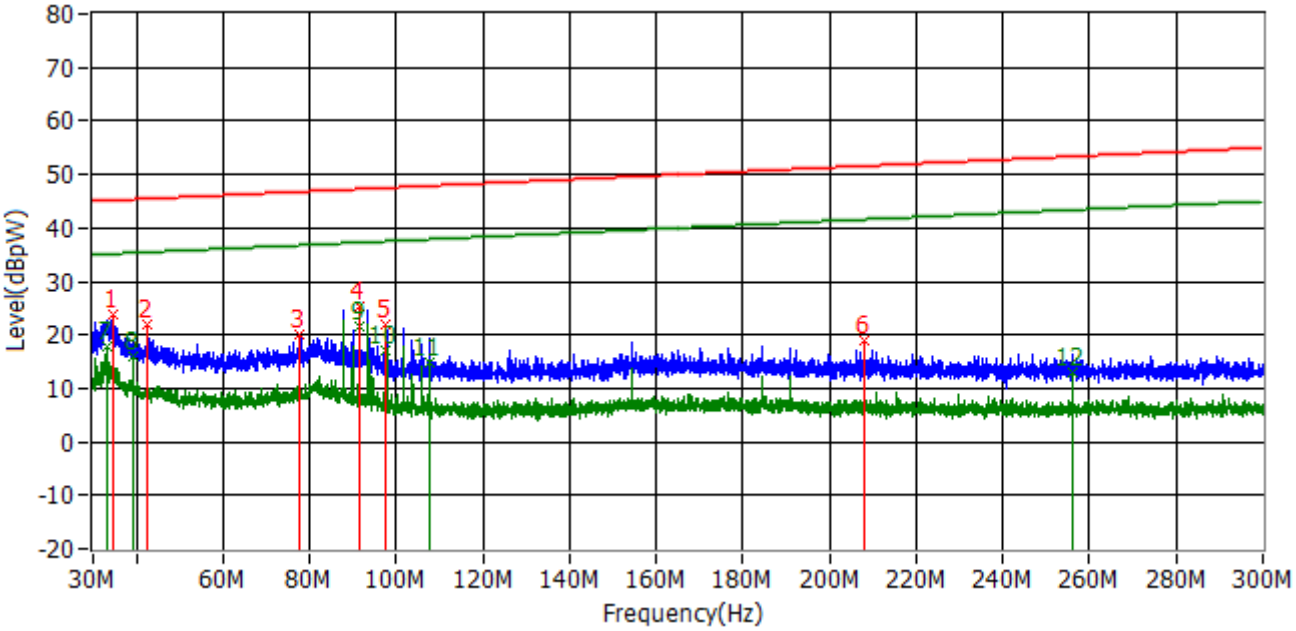
TM-2020T
Level



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector
1		33.5600	-2.49	20.05	17.56	45.13	-27.57	QP
2		33.5600	-9.35	20.05	10.70	35.13	-24.43	AVG
3		91.4000	9.91	16.19	26.10	47.27	-21.17	QP
4	*	91.4000	8.81	16.19	25.00	37.27	-12.27	AVG
5		270.4000	-3.47	16.47	13.00	53.90	-40.90	QP
6		270.4000	-9.17	16.47	7.30	43.90	-36.60	AVG

TM-2010F
Level

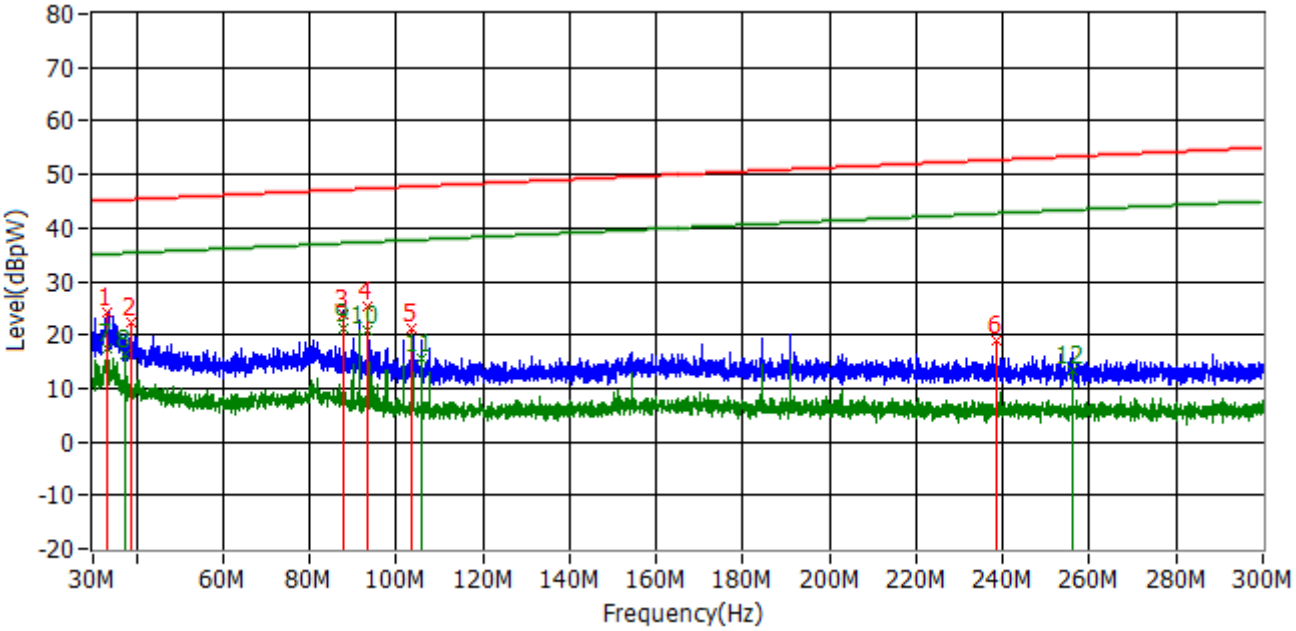
RBW: 120kHz, Line 1 Max Peak
RBW: 120kHz, Line 2 Max Average



No.	Frequency	Limit dBpW	Level dBpW	Delta Limit dB	Factor dB	Detector
1	34.620 MHz	45.2	23.9	-21.3	9.0	QP
2	42.600 MHz	45.5	21.9	-23.6	8.2	QP
3	77.760 MHz	46.8	20.2	-26.6	6.3	QP
4	91.440 MHz	47.3	25.4	-21.9	5.8	QP
5	97.680 MHz	47.5	21.8	-25.7	5.7	QP
6	208.200 MHz	51.6	19.1	-32.5	5.4	QP
7	33.180 MHz	35.1	17.7	-17.4	9.1	CAV
8	39.240 MHz	35.3	16.0	-19.3	8.7	CAV
9	91.440 MHz	37.3	21.4	-15.9	5.8	CAV
10	97.680 MHz	37.5	17.0	-20.5	5.7	CAV
11	107.700 MHz	37.9	14.7	-23.2	5.7	CAV
12	256.020 MHz	43.4	12.8	-30.5	5.5	CAV

TM-2011P
Level

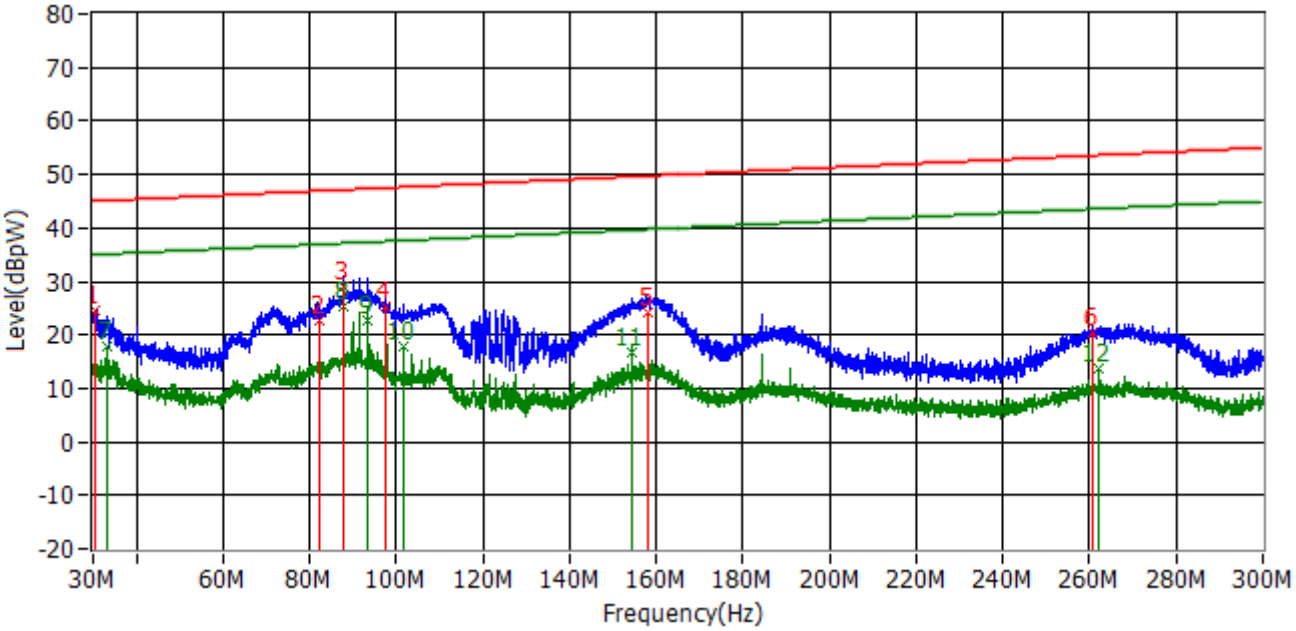
RBW: 120kHz, Line 1 Max Peak
RBW: 120kHz, Line 2 Max Average



No.	Frequency	Limit dBpW	Level dBpW	Delta Limit dB	Factor dB	Detector
1	33.180 MHz	45.1	24.2	-20.9	9.1	QP
2	38.940 MHz	45.3	22.4	-22.9	8.7	QP
3	87.900 MHz	47.1	23.9	-23.2	5.9	QP
4	93.420 MHz	47.3	25.2	-22.2	5.8	QP
5	103.740 MHz	47.7	21.3	-26.4	5.7	QP
6	238.440 MHz	52.7	18.9	-33.8	5.5	QP
7	33.240 MHz	35.1	17.6	-17.5	9.1	CAV
8	37.320 MHz	35.3	16.3	-19.0	8.8	CAV
9	87.900 MHz	37.1	21.3	-15.9	5.9	CAV
10	93.420 MHz	37.3	20.7	-16.6	5.8	CAV
11	105.720 MHz	37.8	15.4	-22.4	5.7	CAV
12	256.020 MHz	43.4	13.5	-29.9	5.5	CAV

TM-2006MJ
Level

RBW: 120kHz, Line 1 Max Peak
RBW: 120kHz, Line 2 Max Average



No.	Frequency	Limit dBpW	Level dBpW	Delta Limit dB	Factor dB	Detector
1	30.600 MHz	45.0	24.5	-20.6	9.3	QP
2	82.140 MHz	46.9	22.7	-24.2	6.2	QP
3	87.900 MHz	47.1	29.2	-18.0	5.9	QP
4	97.680 MHz	47.5	25.2	-22.3	5.7	QP
5	157.980 MHz	49.7	24.1	-25.6	5.5	QP
6	260.820 MHz	53.5	20.6	-33.0	5.5	QP
7	33.180 MHz	35.1	17.7	-17.4	9.1	CAV
8	87.900 MHz	37.1	25.3	-11.9	5.9	CAV
9	93.420 MHz	37.3	22.8	-14.6	5.8	CAV
10	101.700 MHz	37.7	17.8	-19.8	5.7	CAV
11	154.440 MHz	39.6	16.6	-23.0	5.5	CAV
12	262.200 MHz	43.6	13.8	-29.8	5.5	CAV

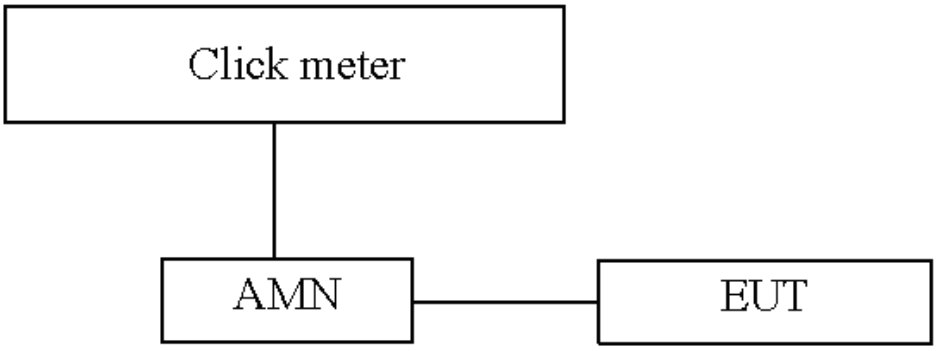
4.3 Discontinuous disturbance

Switching operations in thermostatically controlled appliances, automatic programme controlled machines and other electrically controlled or operated appliances generate discontinuous disturbance.

4.3.1 Limits

Frequency range MHz	Limit dB (μV)
0.15	66
0.5	56
1.4	56
30	60

4.3.2 Measurement procedure



The test configuration is contained inside of a shielded chamber. Receiver compliance to CISPR 16-1-1 with time domain function used during measurement. EUT arrangement was follow EN IEC 55014-1 clause 5.3.3. Operation conditions were follow EN IEC 55014-1 clause 7. 0.15MHz, 0.5MHz, 1.4MHz and 30MHz were spot checked, and upper quartile methods used during measurement. The final judgment of test result was according to figure 6 of EN IEC 55014-1.

4.3.3 Results

TM-2001FJ

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	1	1	0	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2001JT

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	1	1	1	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2005FJ

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	1	1	1	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2005JT

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	1	1	1	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2006FJ

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	1	1	1	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2006JT

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	1	1	0	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2009FJ

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	1	1	1	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2015T

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	2	1	1	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2016T

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	1	1	0	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2019

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	1	1	1	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2020T

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	2	1	1	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2010F

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	5	3	1	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2011P

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	6	4	2	0
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

TM-2006MJ

Frequency (MHz)	0.15	0.5	1.4	30.0
Permitted limit for continuous interference dB(μV)	66.0	56.0	56.0	60.0
Counted click/switch operation number	7	3	2	1
Observed time (min)	120	120	120	120
Click duration (ms)	<10ms	<10ms	<10ms	<10ms
Click rate N	<5	<5	<5	<5
Test result	Pass	Pass	Pass	Pass
Note: The click rate is less than 5, and the click duration is less than 10ms. So it is deemed to comply with limits.				

4.4 Harmonic Current Emissions

This part deals with the limitation of harmonic currents injected into the public supply system.

4.4.1 Limits

Table 1 – Limits for Class A equipment

Harmonic order h	Maximum permissible harmonic current A
Odd harmonics	
3	2,30
5	1,14
7	0,77
9	0,40
11	0,33
13	0,21
$15 \leq h \leq 39$	$0{,}15\frac{15}{h}$
Even harmonics	
2	1,08
4	0,43
6	0,30
$8 \leq h \leq 40$	$0{,}23\frac{8}{h}$

Table 2 – Limits for Class C equipment [a]

Harmonic order h	Maximum permissible harmonic current expressed as a percentage of the input current at the fundamental frequency %
2	2
3	27 [b]
5	10
7	7
9	5
$11 \leq h \leq 39$ (odd harmonics only)	3

[a] For some Class C products, other emission limits apply (see 7.4).

[b] The limit is determined based on the assumption of modern lighting technologies having power factors of 0,90 or higher.

Table 3 – Limits for Class D equipment

Harmonic order h	Maximum permissible harmonic current per watt mA/W	Maximum permissible harmonic current A
3	3,4	2,30
5	1,9	1,14
7	1,0	0,77
9	0,5	0,40
11	0,35	0,33
$13 \leq h \leq 39$ (odd harmonics only)	$\frac{3,85}{h}$	See Table 1

Limits for Class A equipment:
For Class A equipment, the harmonics of the input current shall not exceed the values given In Table 1

Limits for Class B equipment:
For Class B equipment, the harmonics of the input current shall not exceed the values given in Table 1 multiplied by a factor of 1,5.

Limits for Class C equipment:
Rated power > 25 W:
For luminaires with incandescent lamps and built-in phase control dimming having a rated power greater than 25W, the harmonics of the input current shall not exceed the limits givein in Table 1.
For any other lighting equipment having a rated power greater than 25W, the harmonics of the input current shall not exceed the relative limits given in Table 2.

Rated power ≥ 5 W and ≤25 W:
Lighting equipment having a rated power greater than or equal to 5 W and less than or equal to 25 W shall comply with one of the following three sets of requirement:
- The harmonic currents shall not exceed the power-related limits of Table 3, column 2.

Or
- The third harmonic current, expressed as a percentage of the fundamental current, shall not exceed 86 % and the fifth harmonic current shall not exceed 61 %. In addition, the waveform of the input current shall be such that it reaches the 5 % current threshold before or at 60º, has its peak value before or at 65º and does not fall below the 5 % current threshold before 90º, referenced to any zero crossing of the fundamental supply voltage. The current threshold is 5 % of the highest absolute peak value that occurs in the measurement window, and the phase angle measurements are made on the cycle that includes this absolute peak value.

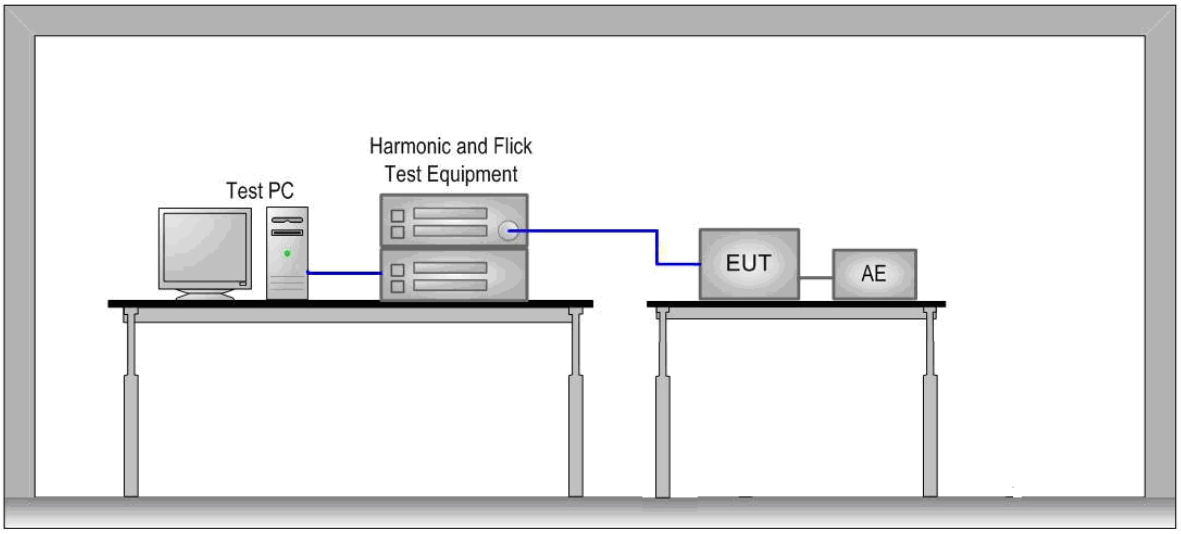
Or
- The THD shall not exceed 70%. The third order harmonic current, expressed as a percentage of the fundamental current, shall not exceed 35%, the fifth order current shall not exceed 25%, the seventh order current shall not exceed 30%, the ninth and eleventh order currents shall not exceed 20% and the second order current shall not exceed 5%.

Limits for Class D equipment:
For Class D equipment, the input current at harmonic frequencies shall not exceed the values given in Table 3.

For the following categories of equipment, limits are not specified:

- Lighting equipment with a rated power less than but not equal to 5W;
- Equipment with rated power of 75 W or less, other than lighting equipment;
- Professional equipment with a total rated power greater than 1 kW;
- Symmetrically controlledheating elements with a rated power less than or equal to 200 W;
- Independent phase control dimmers with a rated power less than or equal to 1 kW when operating incandescent lamps, or with a rated power less than or equal to 200 W for trailing edge dimmers when operating lighting equipment other than incandescent lamps, or with a rated power less than or equal to 100 W for leading ede dimmers when operaing lighting equipment other than incandescent lamps.

4.4.2 Measurement procedure



The equipment under test is placed on a wooden table with a height of 0,8 m in the EMC lab.
For each harmonic order, measure the 1,5 s smoothed RMS harmonic current in each DFT time window and calculate the arithmetic average of the measured values from the DFT time windows, over the entire observation period.
The average values for the individual harmonic currents, taken over the entire test observation period shall be less than or equal to the applicable limits.
For each harmonic order, all 1.5 s smoothed RMS harmonic current values shall be either:

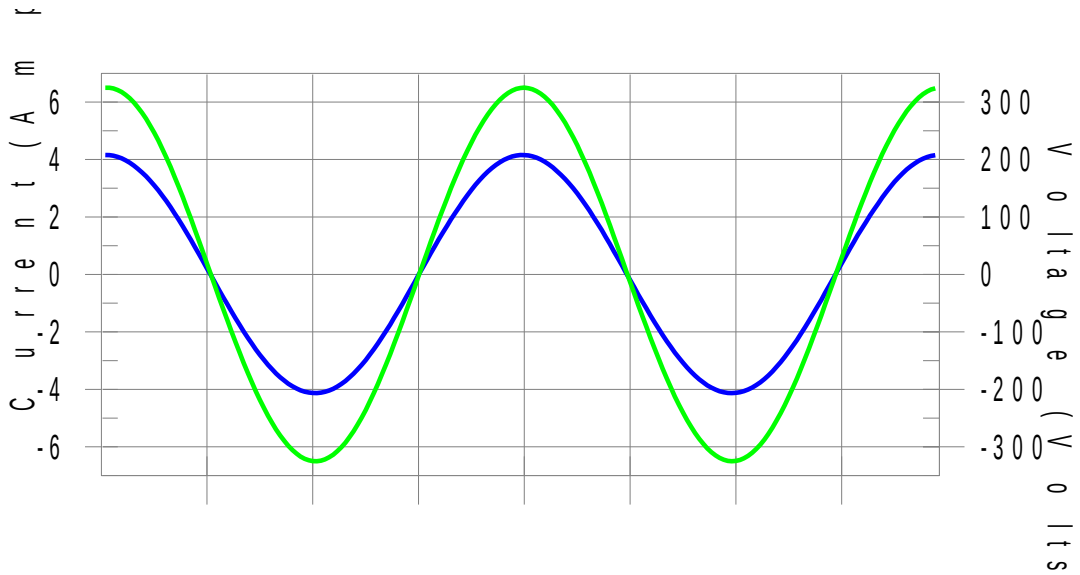
a) Less than or equal to 150% of the applicable limits, or
b) Less than or equal to 200% of the applicable limits under the following conditions:
   1) The EUT belongs to Class A for harmonics,
   2) The excursion beyond 150% of the applicable limits lasts less than 10% of the test observation period or in total 10 min, whichever is smaller, and
   3) The average value of the harmonic current, taken over the entire test observation period, is less than 90% of the applicable limits.

4.4.3 Results

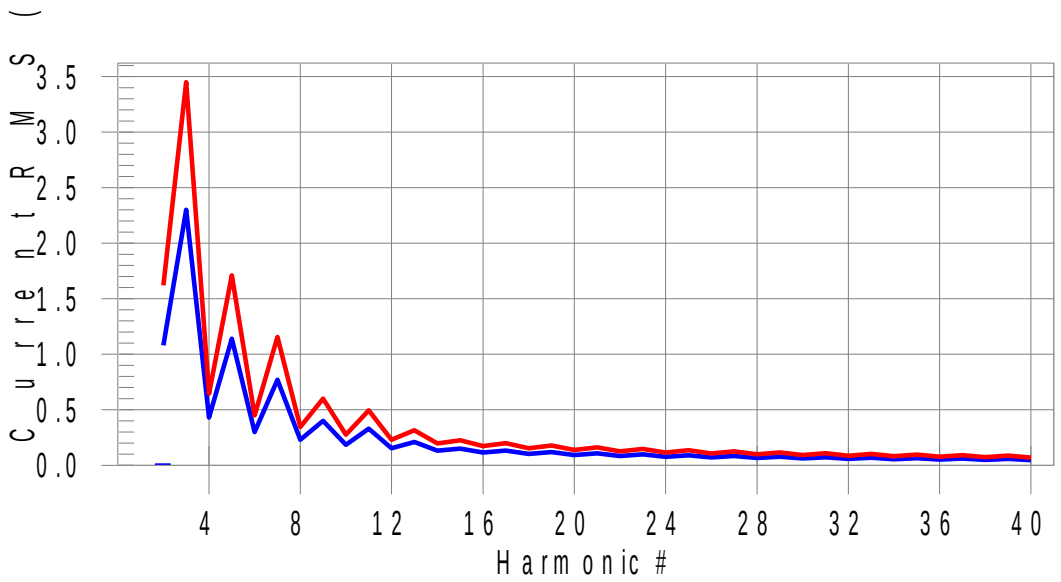
TM-2001FJ
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass **Worst harmonic was #0 with 0.00% of the limit.**

Current Test Result Summary

Test Result: Pass **Source qualification: Normal**
THC(A): 0.00 **I-THD(%): 0.00** **POHC(A): 0.000** **POHC Limit(A): 0.320**
Highest parameter values during test:

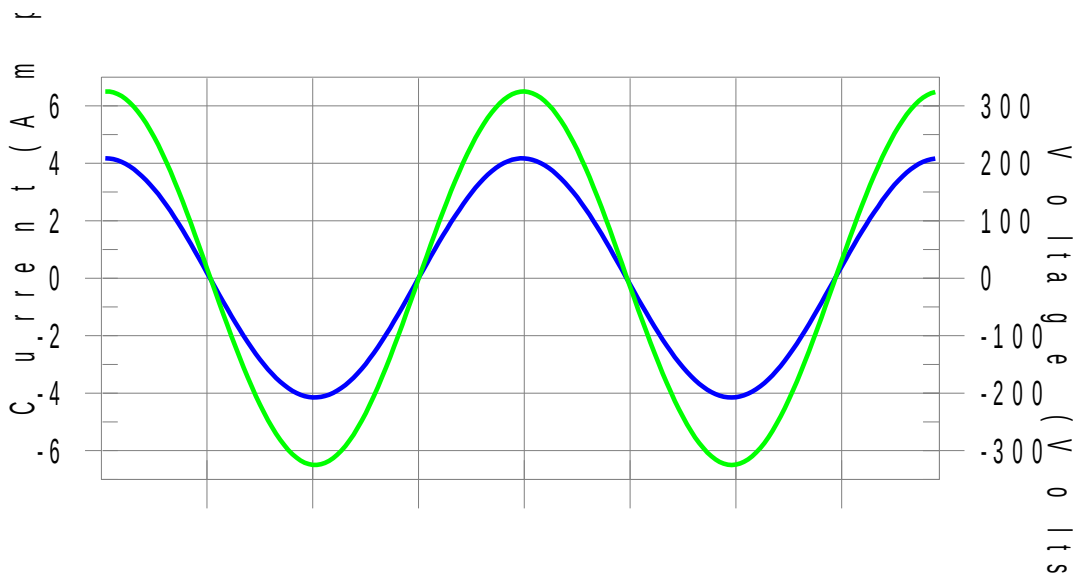
V_RMS (Volts):	229.98	Frequency(Hz):	50.00
I_Peak (Amps):	4.164	I_RMS (Amps):	2.926
I_Fund (Amps):	4.294	Crest Factor:	1.425
Power (Watts):	666.9	Power Factor:	1.000

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.010	1.080	0.0	0.011	1.620	0.67	Pass
3	0.004	2.300	0.0	0.005	3.450	0.13	Pass
4	0.004	0.430	0.0	0.005	0.645	0.76	Pass
5	0.002	1.140	0.0	0.003	1.710	0.16	Pass
6	0.001	0.300	0.0	0.001	0.450	0.18	Pass
7	0.001	0.770	0.0	0.001	1.155	0.09	Pass
8	0.001	0.230	0.0	0.001	0.345	0.37	Pass
9	0.001	0.400	0.0	0.001	0.600	0.14	Pass
10	0.000	0.184	0.0	0.001	0.276	0.20	Pass
11	0.000	0.330	0.0	0.000	0.495	0.08	Pass
12	0.001	0.153	0.0	0.001	0.230	0.25	Pass
13	0.000	0.210	0.0	0.001	0.315	0.17	Pass
14	0.000	0.131	0.0	0.000	0.197	0.15	Pass
15	0.000	0.150	0.0	0.000	0.225	0.11	Pass
16	0.000	0.115	0.0	0.000	0.173	0.24	Pass
17	0.000	0.132	0.0	0.000	0.199	0.19	Pass
18	0.000	0.102	0.0	0.000	0.153	0.11	Pass
19	0.000	0.118	0.0	0.000	0.178	0.15	Pass
20	0.000	0.092	0.0	0.000	0.138	0.18	Pass
21	0.000	0.107	0.0	0.000	0.161	0.22	Pass
22	0.000	0.084	0.0	0.000	0.125	0.21	Pass
23	0.000	0.098	0.0	0.000	0.147	0.14	Pass
24	0.000	0.077	0.0	0.000	0.115	0.14	Pass
25	0.000	0.090	0.0	0.000	0.135	0.13	Pass
26	0.000	0.071	0.0	0.000	0.106	0.19	Pass
27	0.000	0.083	0.0	0.000	0.125	0.16	Pass
28	0.000	0.066	0.0	0.000	0.099	0.24	Pass
29	0.000	0.078	0.0	0.000	0.116	0.21	Pass
30	0.000	0.061	0.0	0.000	0.092	0.23	Pass
31	0.000	0.073	0.0	0.000	0.109	0.19	Pass
32	0.000	0.058	0.0	0.000	0.086	0.28	Pass
33	0.000	0.068	0.0	0.000	0.102	0.20	Pass
34	0.000	0.054	0.0	0.000	0.081	0.21	Pass
35	0.000	0.064	0.0	0.000	0.096	0.15	Pass
36	0.000	0.051	0.0	0.000	0.077	0.17	Pass
37	0.000	0.061	0.0	0.000	0.091	0.17	Pass
38	0.000	0.048	0.0	0.000	0.073	0.16	Pass
39	0.000	0.058	0.0	0.000	0.087	0.24	Pass
40	0.000	0.046	0.0	0.000	0.069	0.20	Pass

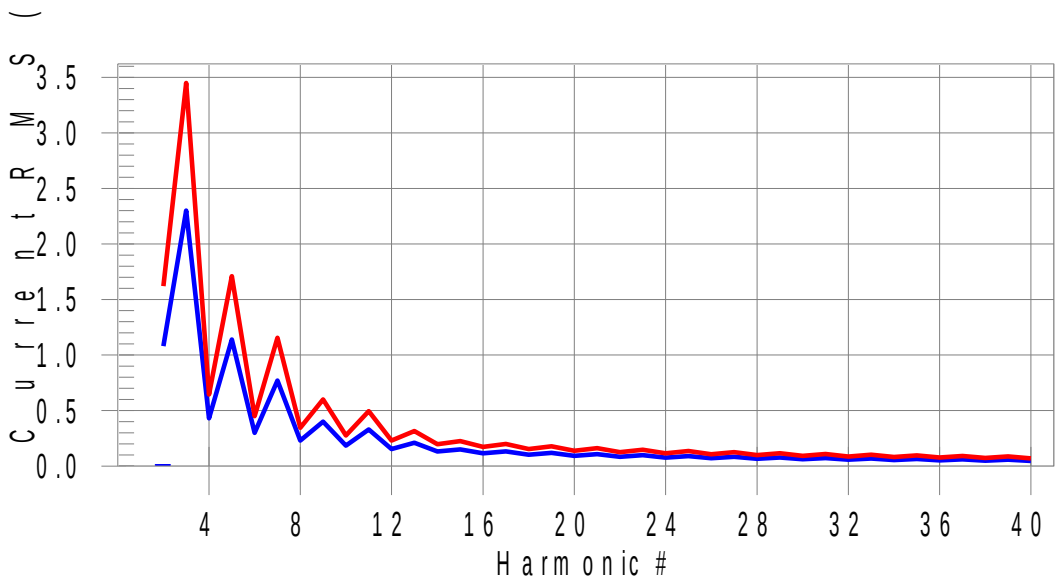
TM-2001JT
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonic was #0 with 0.00% of the limit.

Current Test Result Summary

Test Result: Pass **Source qualification: Normal**
THC(A): 0.00 **I-THD(%): 0.00** **POHC(A): 0.000** **POHC Limit(A): 0.320**
Highest parameter values during test:

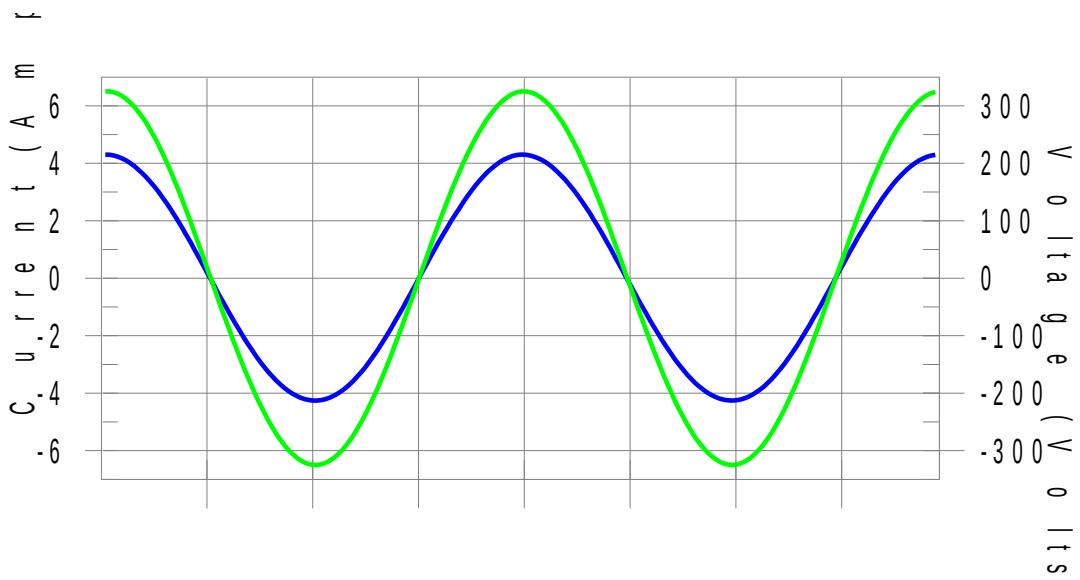
V_RMS (Volts):	229.97	Frequency(Hz):	50.00
I_Peak (Amps):	4.183	I_RMS (Amps):	2.938
I_Fund (Amps):	2.902	Crest Factor:	1.425
Power (Watts):	667.2	Power Factor:	1.000

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.010	1.080	0.0	0.011	1.620	0.66	Pass
3	0.004	2.300	0.0	0.004	3.450	0.13	Pass
4	0.004	0.430	0.0	0.005	0.645	0.74	Pass
5	0.002	1.140	0.0	0.003	1.710	0.15	Pass
6	0.001	0.300	0.0	0.001	0.450	0.17	Pass
7	0.001	0.770	0.0	0.001	1.155	0.08	Pass
8	0.001	0.230	0.0	0.001	0.345	0.38	Pass
9	0.001	0.400	0.0	0.001	0.600	0.15	Pass
10	0.000	0.184	0.0	0.000	0.276	0.17	Pass
11	0.000	0.330	0.0	0.000	0.495	0.09	Pass
12	0.001	0.153	0.0	0.001	0.230	0.26	Pass
13	0.000	0.210	0.0	0.001	0.315	0.16	Pass
14	0.000	0.131	0.0	0.000	0.197	0.14	Pass
15	0.000	0.150	0.0	0.000	0.225	0.10	Pass
16	0.000	0.115	0.0	0.000	0.173	0.25	Pass
17	0.000	0.132	0.0	0.000	0.199	0.19	Pass
18	0.000	0.102	0.0	0.000	0.153	0.10	Pass
19	0.000	0.118	0.0	0.000	0.178	0.14	Pass
20	0.000	0.092	0.0	0.000	0.138	0.16	Pass
21	0.000	0.107	0.0	0.000	0.161	0.21	Pass
22	0.000	0.084	0.0	0.000	0.125	0.19	Pass
23	0.000	0.098	0.0	0.000	0.147	0.14	Pass
24	0.000	0.077	0.0	0.000	0.115	0.14	Pass
25	0.000	0.090	0.0	0.000	0.135	0.14	Pass
26	0.000	0.071	0.0	0.000	0.106	0.18	Pass
27	0.000	0.083	0.0	0.000	0.125	0.14	Pass
28	0.000	0.066	0.0	0.000	0.099	0.24	Pass
29	0.000	0.078	0.0	0.000	0.116	0.21	Pass
30	0.000	0.061	0.0	0.000	0.092	0.22	Pass
31	0.000	0.073	0.0	0.000	0.109	0.18	Pass
32	0.000	0.058	0.0	0.000	0.086	0.28	Pass
33	0.000	0.068	0.0	0.000	0.102	0.20	Pass
34	0.000	0.054	0.0	0.000	0.081	0.21	Pass
35	0.000	0.064	0.0	0.000	0.096	0.15	Pass
36	0.000	0.051	0.0	0.000	0.077	0.19	Pass
37	0.000	0.061	0.0	0.000	0.091	0.16	Pass
38	0.000	0.048	0.0	0.000	0.073	0.16	Pass
39	0.000	0.058	0.0	0.000	0.087	0.21	Pass
40	0.000	0.046	0.0	0.000	0.069	0.19	Pass

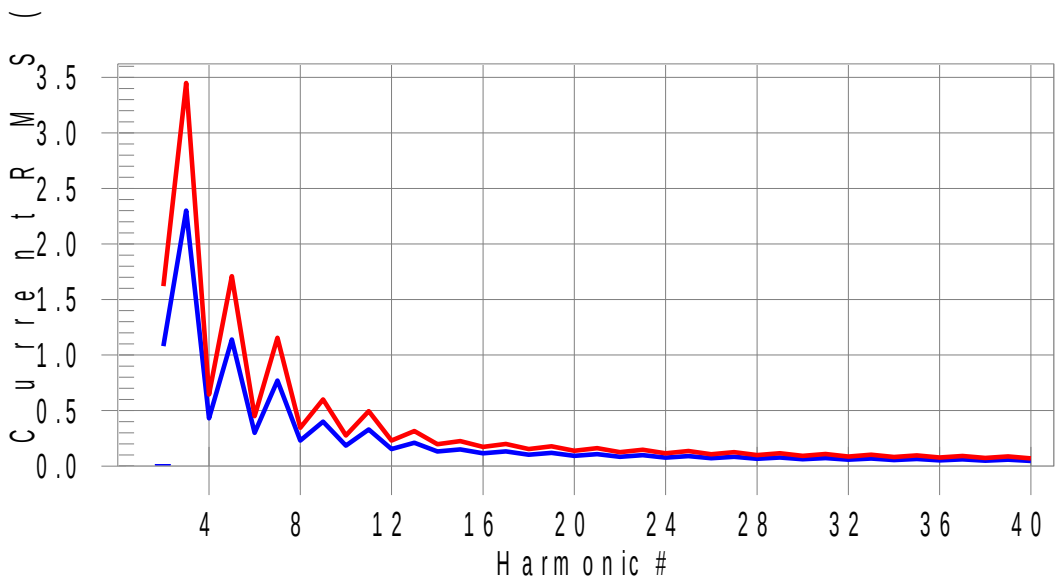
TM-2005FJ
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonic was #3 with 0.00% of the limit.

Current Test Result Summary

THC(A): 0.00 I-THD(%): 0.00 POHC(A): 0.000 POHC Limit(A): 0.320
Highest parameter values during test:

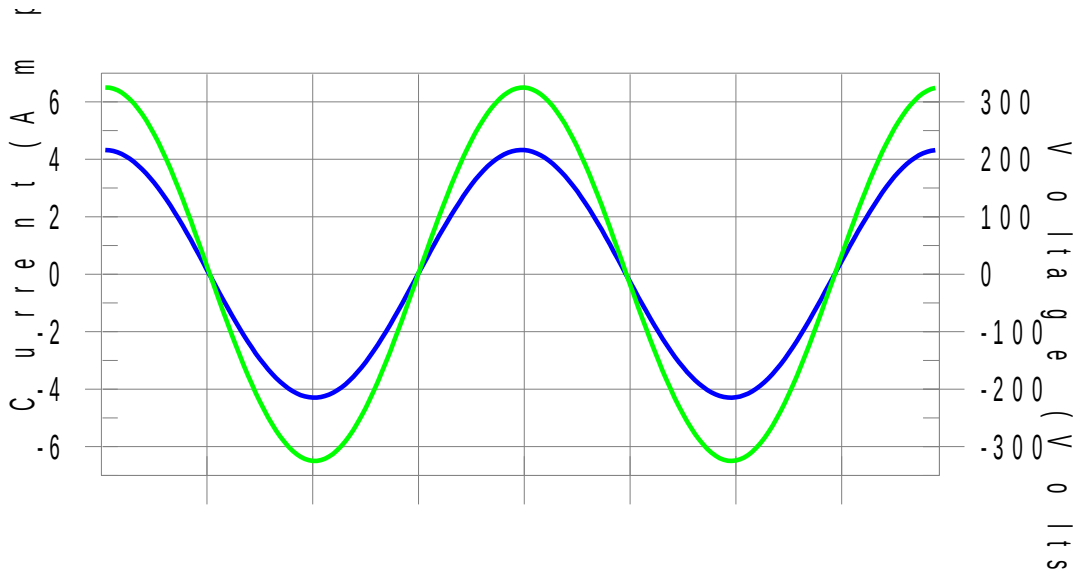
V_RMS (Volts):	229.99	Frequency(Hz):	50.00
I_Peak (Amps):	4.305	I_RMS (Amps):	3.022
I_Fund (Amps):	3.015	Crest Factor:	1.425
Power (Watts):	693.1	Power Factor:	1.000

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.011	1.080	0.0	0.012	1.620	0.71	Pass
3	0.004	2.300	0.0	0.005	3.450	0.14	Pass
4	0.005	0.430	0.0	0.005	0.645	0.80	Pass
5	0.002	1.140	0.0	0.003	1.710	0.18	Pass
6	0.001	0.300	0.0	0.001	0.450	0.17	Pass
7	0.001	0.770	0.0	0.001	1.155	0.10	Pass
8	0.001	0.230	0.0	0.001	0.345	0.41	Pass
9	0.001	0.400	0.0	0.001	0.600	0.16	Pass
10	0.000	0.184	0.0	0.001	0.276	0.18	Pass
11	0.000	0.330	0.0	0.001	0.495	0.10	Pass
12	0.001	0.153	0.0	0.001	0.230	0.28	Pass
13	0.000	0.210	0.0	0.001	0.315	0.16	Pass
14	0.000	0.131	0.0	0.000	0.197	0.14	Pass
15	0.000	0.150	0.0	0.000	0.225	0.10	Pass
16	0.000	0.115	0.0	0.000	0.173	0.27	Pass
17	0.000	0.132	0.0	0.000	0.199	0.20	Pass
18	0.000	0.102	0.0	0.000	0.153	0.09	Pass
19	0.000	0.118	0.0	0.000	0.178	0.14	Pass
20	0.000	0.092	0.0	0.000	0.138	0.17	Pass
21	0.000	0.107	0.0	0.000	0.161	0.21	Pass
22	0.000	0.084	0.0	0.000	0.125	0.19	Pass
23	0.000	0.098	0.0	0.000	0.147	0.14	Pass
24	0.000	0.077	0.0	0.000	0.115	0.15	Pass
25	0.000	0.090	0.0	0.000	0.135	0.13	Pass
26	0.000	0.071	0.0	0.000	0.106	0.17	Pass
27	0.000	0.083	0.0	0.000	0.125	0.14	Pass
28	0.000	0.066	0.0	0.000	0.099	0.25	Pass
29	0.000	0.078	0.0	0.000	0.116	0.22	Pass
30	0.000	0.061	0.0	0.000	0.092	0.22	Pass
31	0.000	0.073	0.0	0.000	0.109	0.16	Pass
32	0.000	0.058	0.0	0.000	0.086	0.29	Pass
33	0.000	0.068	0.0	0.000	0.102	0.18	Pass
34	0.000	0.054	0.0	0.000	0.081	0.20	Pass
35	0.000	0.064	0.0	0.000	0.096	0.15	Pass
36	0.000	0.051	0.0	0.000	0.077	0.20	Pass
37	0.000	0.061	0.0	0.000	0.091	0.16	Pass
38	0.000	0.048	0.0	0.000	0.073	0.16	Pass
39	0.000	0.058	0.0	0.000	0.087	0.19	Pass
40	0.000	0.046	0.0	0.000	0.069	0.19	Pass

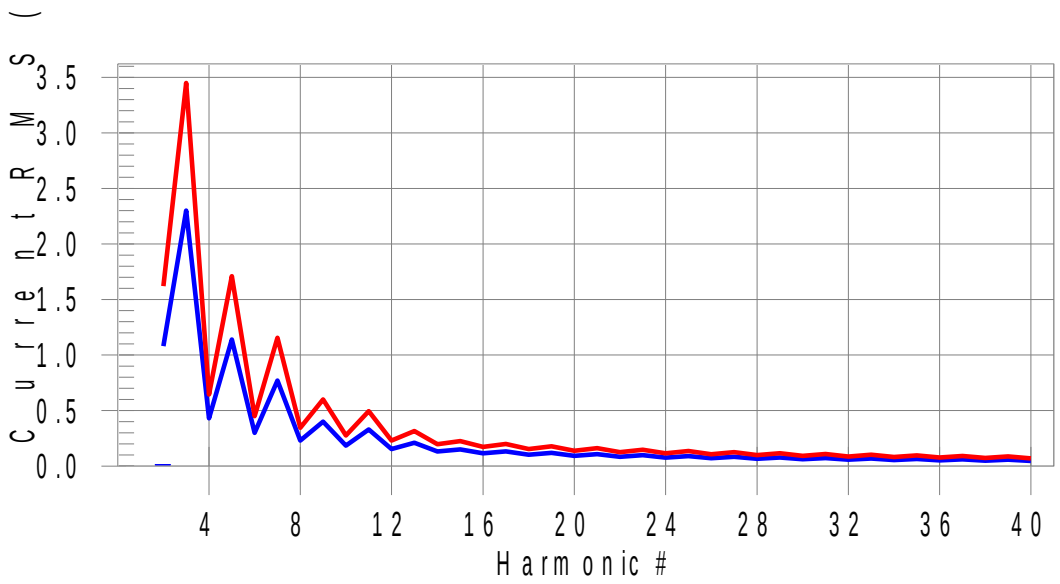
TM-2005JT
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonic was #3 with 0.00% of the limit.

Current Test Result Summary

Test Result: Pass **Source qualification: Normal**
THC(A): 0.00 **I-THD(%): 0.00** **POHC(A): 0.000** **POHC Limit(A): 0.320**
Highest parameter values during test:

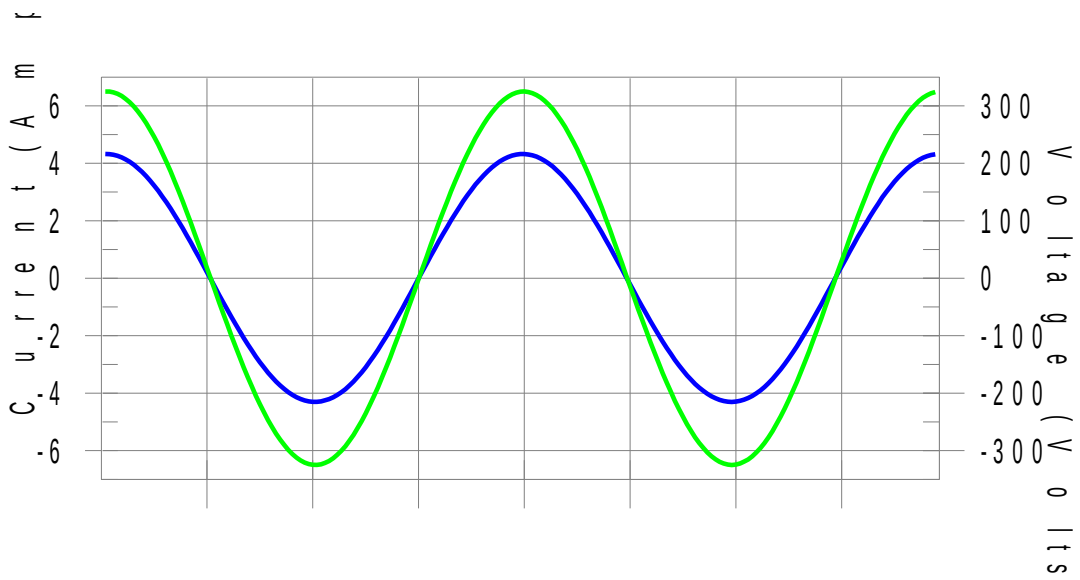
V_RMS (Volts):	**230.01**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**4.332**	**I_RMS (Amps):**	**3.043**
I_Fund (Amps):	**3.030**	**Crest Factor:**	**1.424**
Power (Watts):	**696.6**	**Power Factor:**	**1.000**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.012	1.080	0.0	0.012	1.620	0.77	Pass
3	0.004	2.300	0.0	0.005	3.450	0.13	Pass
4	0.005	0.430	0.0	0.005	0.645	0.80	Pass
5	0.002	1.140	0.0	0.003	1.710	0.17	Pass
6	0.001	0.300	0.0	0.001	0.450	0.19	Pass
7	0.001	0.770	0.0	0.001	1.155	0.11	Pass
8	0.001	0.230	0.0	0.001	0.345	0.41	Pass
9	0.001	0.400	0.0	0.001	0.600	0.18	Pass
10	0.000	0.184	0.0	0.000	0.276	0.16	Pass
11	0.001	0.330	0.0	0.001	0.495	0.13	Pass
12	0.001	0.153	0.0	0.001	0.230	0.31	Pass
13	0.000	0.210	0.0	0.001	0.315	0.16	Pass
14	0.000	0.131	0.0	0.000	0.197	0.13	Pass
15	0.000	0.150	0.0	0.000	0.225	0.12	Pass
16	0.000	0.115	0.0	0.001	0.173	0.30	Pass
17	0.000	0.132	0.0	0.000	0.199	0.20	Pass
18	0.000	0.102	0.0	0.000	0.153	0.17	Pass
19	0.000	0.118	0.0	0.000	0.178	0.13	Pass
20	0.000	0.092	0.0	0.000	0.138	0.19	Pass
21	0.000	0.107	0.0	0.000	0.161	0.21	Pass
22	0.000	0.084	0.0	0.000	0.125	0.18	Pass
23	0.000	0.098	0.0	0.000	0.147	0.19	Pass
24	0.000	0.077	0.0	0.000	0.115	0.19	Pass
25	0.000	0.090	0.0	0.000	0.135	0.16	Pass
26	0.000	0.071	0.0	0.000	0.106	0.16	Pass
27	0.000	0.083	0.0	0.000	0.125	0.12	Pass
28	0.000	0.066	0.0	0.000	0.099	0.28	Pass
29	0.000	0.078	0.0	0.000	0.116	0.22	Pass
30	0.000	0.061	0.0	0.000	0.092	0.21	Pass
31	0.000	0.073	0.0	0.000	0.109	0.17	Pass
32	0.000	0.058	0.0	0.000	0.086	0.29	Pass
33	0.000	0.068	0.0	0.000	0.102	0.21	Pass
34	0.000	0.054	0.0	0.000	0.081	0.20	Pass
35	0.000	0.064	0.0	0.000	0.096	0.21	Pass
36	0.000	0.051	0.0	0.000	0.077	0.23	Pass
37	0.000	0.061	0.0	0.000	0.091	0.15	Pass
38	0.000	0.048	0.0	0.000	0.073	0.18	Pass
39	0.000	0.058	0.0	0.000	0.087	0.18	Pass
40	0.000	0.046	0.0	0.000	0.069	0.22	Pass

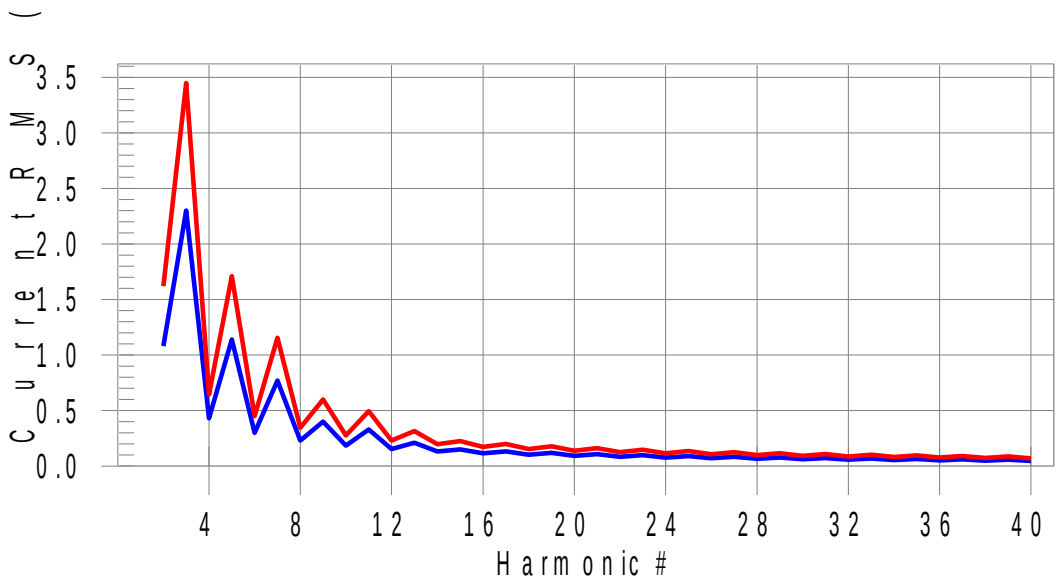
TM-2006FJ
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonic was #3 with 0.00% of the limit.

Current Test Result Summary

Test Result: Pass **Source qualification: Normal**
THC(A): 0.00 **I-THD(%): 0.00** **POHC(A): 0.000** **POHC Limit(A): 0.320**
Highest parameter values during test:

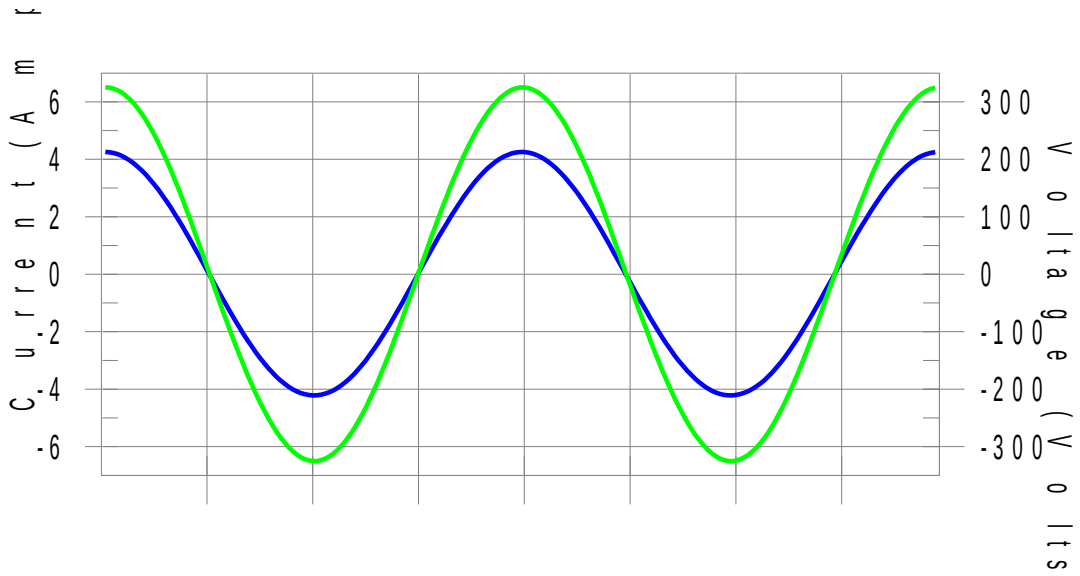
V_RMS (Volts):	**230.01**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**4.334**	**I_RMS (Amps):**	**3.048**
I_Fund (Amps):	**3.032**	**Crest Factor:**	**1.423**
Power (Watts):	**696.8**	**Power Factor:**	**1.000**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.009	1.080	0.0	0.010	1.620	0.61	Pass
3	0.005	2.300	0.0	0.005	3.450	0.15	Pass
4	0.002	0.430	0.0	0.003	0.645	0.50	Pass
5	0.001	1.140	0.0	0.001	1.710	0.08	Pass
6	0.001	0.300	0.0	0.001	0.450	0.24	Pass
7	0.001	0.770	0.0	0.001	1.155	0.09	Pass
8	0.001	0.230	0.0	0.001	0.345	0.22	Pass
9	0.001	0.400	0.0	0.001	0.600	0.19	Pass
10	0.000	0.184	0.0	0.001	0.276	0.21	Pass
11	0.000	0.330	0.0	0.001	0.495	0.11	Pass
12	0.000	0.153	0.0	0.000	0.230	0.14	Pass
13	0.000	0.210	0.0	0.000	0.315	0.11	Pass
14	0.000	0.131	0.0	0.000	0.197	0.21	Pass
15	0.000	0.150	0.0	0.000	0.225	0.10	Pass
16	0.000	0.115	0.0	0.000	0.173	0.19	Pass
17	0.000	0.132	0.0	0.000	0.199	0.12	Pass
18	0.000	0.102	0.0	0.000	0.153	0.23	Pass
19	0.000	0.118	0.0	0.000	0.178	0.12	Pass
20	0.000	0.092	0.0	0.000	0.138	0.26	Pass
21	0.000	0.107	0.0	0.000	0.161	0.16	Pass
22	0.000	0.084	0.0	0.000	0.125	0.13	Pass
23	0.000	0.098	0.0	0.000	0.147	0.13	Pass
24	0.000	0.077	0.0	0.000	0.115	0.20	Pass
25	0.000	0.090	0.0	0.000	0.135	0.19	Pass
26	0.000	0.071	0.0	0.000	0.106	0.14	Pass
27	0.000	0.083	0.0	0.000	0.125	0.16	Pass
28	0.000	0.066	0.0	0.000	0.099	0.28	Pass
29	0.000	0.078	0.0	0.000	0.116	0.15	Pass
30	0.000	0.061	0.0	0.000	0.092	0.21	Pass
31	0.000	0.073	0.0	0.000	0.109	0.14	Pass
32	0.000	0.058	0.0	0.000	0.086	0.27	Pass
33	0.000	0.068	0.0	0.000	0.102	0.16	Pass
34	0.000	0.054	0.0	0.000	0.081	0.18	Pass
35	0.000	0.064	0.0	0.000	0.096	0.19	Pass
36	0.000	0.051	0.0	0.000	0.077	0.15	Pass
37	0.000	0.061	0.0	0.000	0.091	0.16	Pass
38	0.000	0.048	0.0	0.000	0.073	0.17	Pass
39	0.000	0.058	0.0	0.000	0.087	0.22	Pass
40	0.000	0.046	0.0	0.000	0.069	0.23	Pass

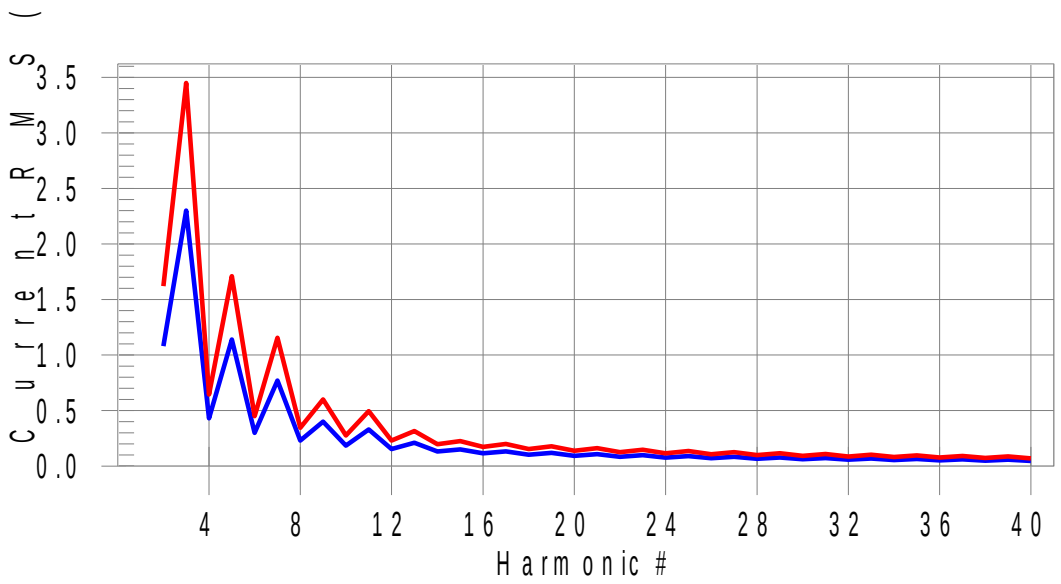
TM-2006JT
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonic was #3 with 0.00% of the limit.

Current Test Result Summary

Test Result: Pass **Source qualification: Normal**
THC(A): 0.00 **I-THD(%): 0.00** **POHC(A): 0.000** **POHC Limit(A): 0.320**
Highest parameter values during test:

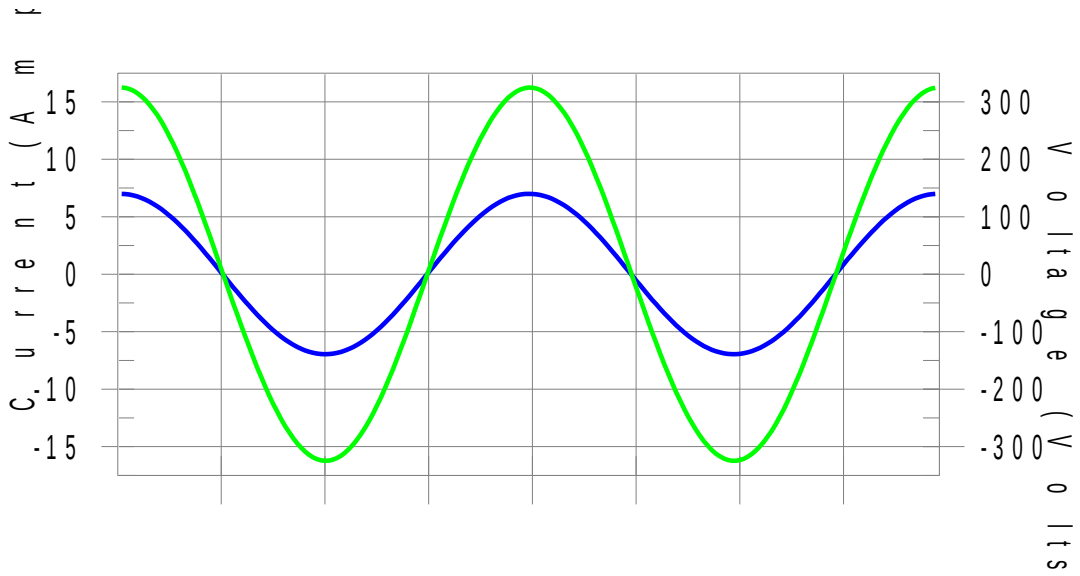
V_RMS (Volts):	**230.01**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**4.258**	**I_RMS (Amps):**	**2.992**
I_Fund (Amps):	**3.021**	**Crest Factor:**	**1.423**
Power (Watts):	**688.1**	**Power Factor:**	**1.000**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.009	1.080	0.0	0.010	1.620	0.62	Pass
3	0.005	2.300	0.0	0.005	3.450	0.15	Pass
4	0.002	0.430	0.0	0.003	0.645	0.47	Pass
5	0.001	1.140	0.0	0.001	1.710	0.08	Pass
6	0.001	0.300	0.0	0.001	0.450	0.21	Pass
7	0.001	0.770	0.0	0.001	1.155	0.09	Pass
8	0.001	0.230	0.0	0.001	0.345	0.21	Pass
9	0.001	0.400	0.0	0.001	0.600	0.17	Pass
10	0.000	0.184	0.0	0.000	0.276	0.18	Pass
11	0.000	0.330	0.0	0.000	0.495	0.10	Pass
12	0.000	0.153	0.0	0.000	0.230	0.13	Pass
13	0.000	0.210	0.0	0.000	0.315	0.09	Pass
14	0.000	0.131	0.0	0.000	0.197	0.18	Pass
15	0.000	0.150	0.0	0.000	0.225	0.09	Pass
16	0.000	0.115	0.0	0.000	0.173	0.16	Pass
17	0.000	0.132	0.0	0.000	0.199	0.10	Pass
18	0.000	0.102	0.0	0.000	0.153	0.22	Pass
19	0.000	0.118	0.0	0.000	0.178	0.10	Pass
20	0.000	0.092	0.0	0.000	0.138	0.23	Pass
21	0.000	0.107	0.0	0.000	0.161	0.15	Pass
22	0.000	0.084	0.0	0.000	0.125	0.12	Pass
23	0.000	0.098	0.0	0.000	0.147	0.13	Pass
24	0.000	0.077	0.0	0.000	0.115	0.17	Pass
25	0.000	0.090	0.0	0.000	0.135	0.16	Pass
26	0.000	0.071	0.0	0.000	0.106	0.14	Pass
27	0.000	0.083	0.0	0.000	0.125	0.13	Pass
28	0.000	0.066	0.0	0.000	0.099	0.26	Pass
29	0.000	0.078	0.0	0.000	0.116	0.15	Pass
30	0.000	0.061	0.0	0.000	0.092	0.20	Pass
31	0.000	0.073	0.0	0.000	0.109	0.12	Pass
32	0.000	0.058	0.0	0.000	0.086	0.28	Pass
33	0.000	0.068	0.0	0.000	0.102	0.16	Pass
34	0.000	0.054	0.0	0.000	0.081	0.17	Pass
35	0.000	0.064	0.0	0.000	0.096	0.18	Pass
36	0.000	0.051	0.0	0.000	0.077	0.15	Pass
37	0.000	0.061	0.0	0.000	0.091	0.15	Pass
38	0.000	0.048	0.0	0.000	0.073	0.15	Pass
39	0.000	0.058	0.0	0.000	0.087	0.19	Pass
40	0.000	0.046	0.0	0.000	0.069	0.22	Pass

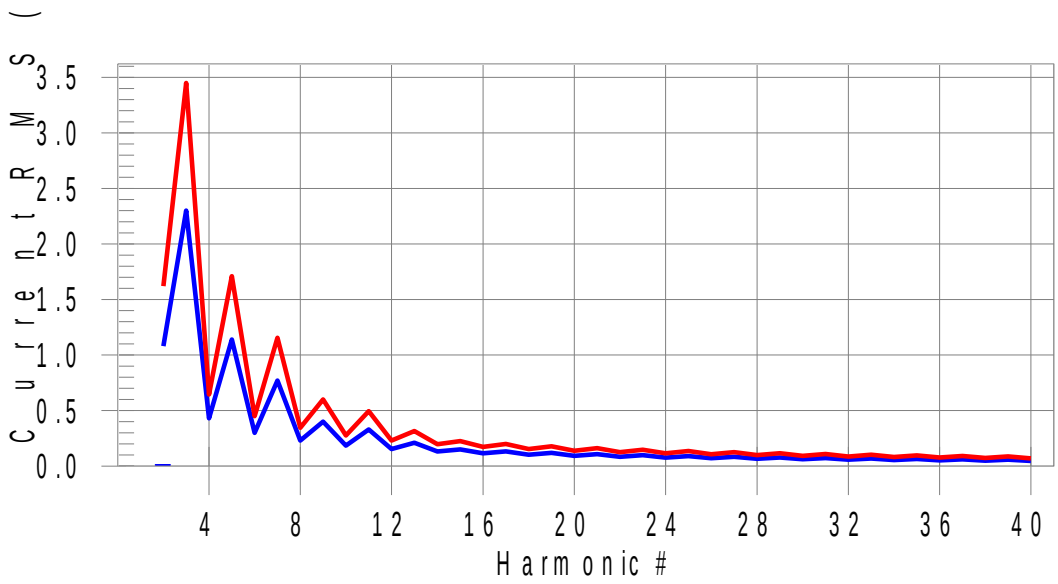
TM-2009FJ
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonic was #3 with 0.00% of the limit.

Current Test Result Summary

Test Result: Pass **Source qualification: Normal**
THC(A): 0.00 **I-THD(%): 0.00** **POHC(A): 0.000** **POHC Limit(A): 0.320**
Highest parameter values during test:

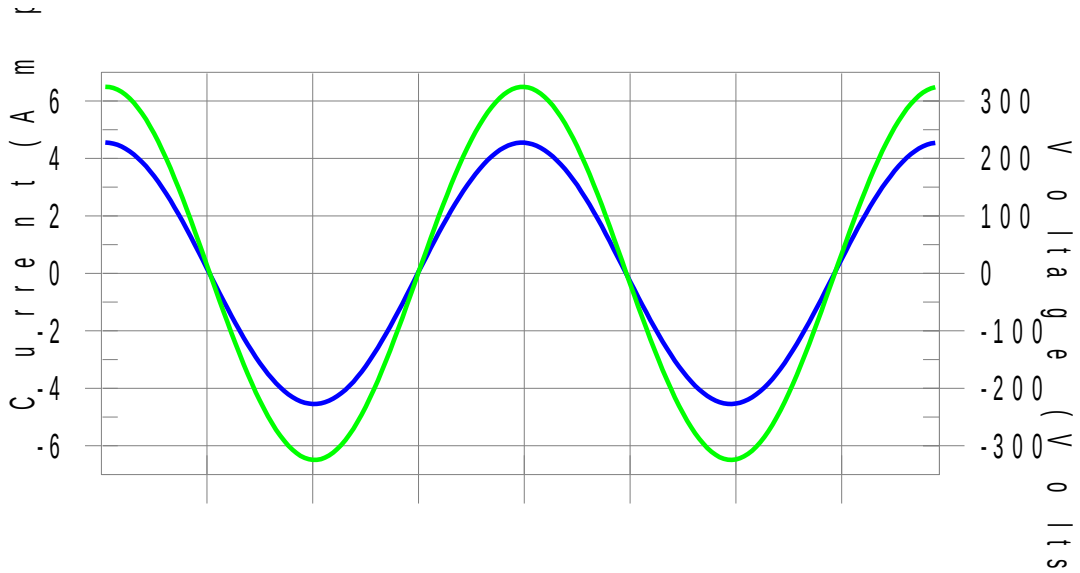
V_RMS (Volts):	**229.99**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**6.996**	**I_RMS (Amps):**	**4.933**
I_Fund (Amps):	**4.918**	**Crest Factor:**	**1.420**
Power (Watts):	**1130.7**	**Power Factor:**	**1.000**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.010	1.080	0.0	0.010	1.620	0.64	Pass
3	0.007	2.300	0.0	0.007	3.450	0.21	Pass
4	0.003	0.430	0.0	0.004	0.645	0.65	Pass
5	0.003	1.140	0.0	0.003	1.710	0.19	Pass
6	0.001	0.300	0.0	0.001	0.450	0.18	Pass
7	0.001	0.770	0.0	0.001	1.155	0.06	Pass
8	0.001	0.230	0.0	0.001	0.345	0.37	Pass
9	0.001	0.400	0.0	0.001	0.600	0.22	Pass
10	0.000	0.184	0.0	0.000	0.276	0.17	Pass
11	0.001	0.330	0.0	0.001	0.495	0.17	Pass
12	0.001	0.153	0.0	0.001	0.230	0.27	Pass
13	0.000	0.210	0.0	0.000	0.315	0.11	Pass
14	0.000	0.131	0.0	0.000	0.197	0.20	Pass
15	0.000	0.150	0.0	0.000	0.225	0.10	Pass
16	0.001	0.115	0.0	0.001	0.173	0.33	Pass
17	0.000	0.132	0.0	0.000	0.199	0.17	Pass
18	0.000	0.102	0.0	0.000	0.153	0.30	Pass
19	0.000	0.118	0.0	0.000	0.178	0.13	Pass
20	0.000	0.092	0.0	0.000	0.138	0.23	Pass
21	0.000	0.107	0.0	0.000	0.161	0.23	Pass
22	0.000	0.084	0.0	0.000	0.125	0.16	Pass
23	0.000	0.098	0.0	0.000	0.147	0.23	Pass
24	0.000	0.077	0.0	0.000	0.115	0.19	Pass
25	0.000	0.090	0.0	0.000	0.135	0.20	Pass
26	0.000	0.071	0.0	0.000	0.106	0.19	Pass
27	0.000	0.083	0.0	0.000	0.125	0.16	Pass
28	0.000	0.066	0.0	0.000	0.099	0.28	Pass
29	0.000	0.078	0.0	0.000	0.116	0.23	Pass
30	0.000	0.061	0.0	0.000	0.092	0.26	Pass
31	0.000	0.073	0.0	0.000	0.109	0.19	Pass
32	0.000	0.058	0.0	0.000	0.086	0.28	Pass
33	0.000	0.068	0.0	0.000	0.102	0.20	Pass
34	0.000	0.054	0.0	0.000	0.081	0.21	Pass
35	0.000	0.064	0.0	0.000	0.096	0.23	Pass
36	0.000	0.051	0.0	0.000	0.077	0.18	Pass
37	0.000	0.061	0.0	0.000	0.091	0.17	Pass
38	0.000	0.048	0.0	0.000	0.073	0.20	Pass
39	0.000	0.058	0.0	0.000	0.087	0.21	Pass
40	0.000	0.046	0.0	0.000	0.069	0.26	Pass

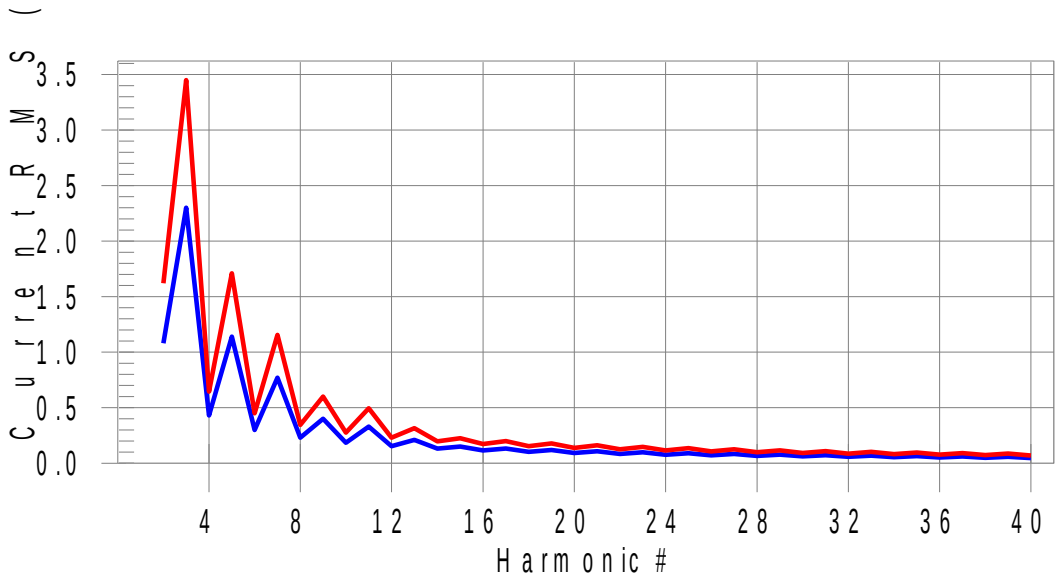
TM-2015T
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonic was #0 with 0.00% of the limit.

Current Test Result Summary

Test Result: Pass **Source qualification: Normal**
THC(A): 0.00 **I-THD(%): 0.00** **POHC(A): 0.000** **POHC Limit(A): 0.251**
Highest parameter values during test:

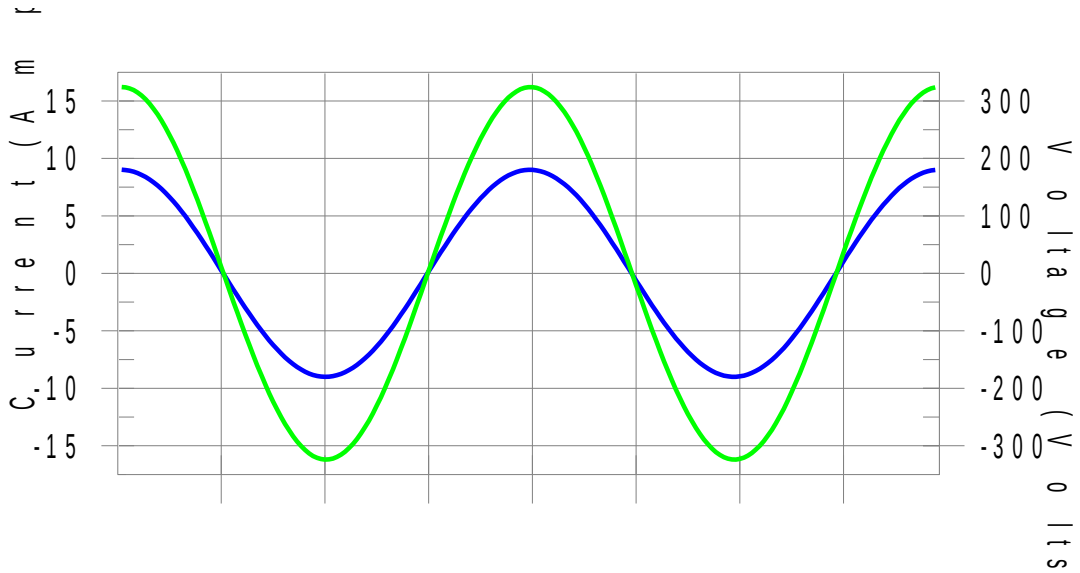
V_RMS (Volts):	**229.65**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**4.560**	**I_RMS (Amps):**	**3.215**
I_Fund (Amps):	**3.191**	**Crest Factor:**	**1.419**
Power (Watts):	**732.7**	**Power Factor:**	**1.000**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.003	1.080	0.0	0.004	1.620	0.26	Pass
3	0.006	2.300	0.0	0.006	3.450	0.17	Pass
4	0.002	0.430	0.0	0.003	0.645	0.41	Pass
5	0.002	1.140	0.0	0.002	1.710	0.14	Pass
6	0.001	0.300	0.0	0.001	0.450	0.27	Pass
7	0.001	0.770	0.0	0.001	1.155	0.07	Pass
8	0.000	0.230	0.0	0.000	0.345	0.11	Pass
9	0.001	0.400	0.0	0.001	0.600	0.11	Pass
10	0.000	0.184	0.0	0.001	0.276	0.20	Pass
11	0.001	0.330	0.0	0.001	0.495	0.12	Pass
12	0.000	0.153	0.0	0.000	0.230	0.13	Pass
13	0.000	0.210	0.0	0.000	0.315	0.06	Pass
14	0.000	0.131	0.0	0.000	0.197	0.10	Pass
15	0.000	0.150	0.0	0.000	0.225	0.10	Pass
16	0.000	0.115	0.0	0.000	0.173	0.14	Pass
17	0.000	0.132	0.0	0.000	0.199	0.06	Pass
18	0.000	0.102	0.0	0.000	0.153	0.16	Pass
19	0.000	0.118	0.0	0.000	0.178	0.03	Pass
20	0.000	0.092	0.0	0.000	0.138	0.14	Pass
21	0.000	0.107	0.0	0.000	0.161	0.07	Pass
22	0.000	0.084	0.0	0.000	0.125	0.05	Pass
23	0.000	0.098	0.0	0.000	0.147	0.08	Pass
24	0.000	0.077	0.0	0.000	0.115	0.04	Pass
25	0.000	0.090	0.0	0.000	0.135	0.05	Pass
26	0.000	0.071	0.0	0.000	0.106	0.05	Pass
27	0.000	0.083	0.0	0.000	0.125	0.06	Pass
28	0.000	0.066	0.0	0.000	0.099	0.11	Pass
29	0.000	0.078	0.0	0.000	0.116	0.08	Pass
30	0.000	0.061	0.0	0.000	0.092	0.11	Pass
31	0.000	0.073	0.0	0.000	0.109	0.07	Pass
32	0.000	0.058	0.0	0.000	0.086	0.15	Pass
33	0.000	0.068	0.0	0.000	0.102	0.03	Pass
34	0.000	0.054	0.0	0.000	0.081	0.06	Pass
35	0.000	0.064	0.0	0.000	0.096	0.05	Pass
36	0.000	0.051	0.0	0.000	0.077	0.04	Pass
37	0.000	0.061	0.0	0.000	0.091	0.07	Pass
38	0.000	0.048	0.0	0.000	0.073	0.06	Pass
39	0.000	0.058	0.0	0.000	0.087	0.10	Pass
40	0.000	0.046	0.0	0.000	0.069	0.11	Pass

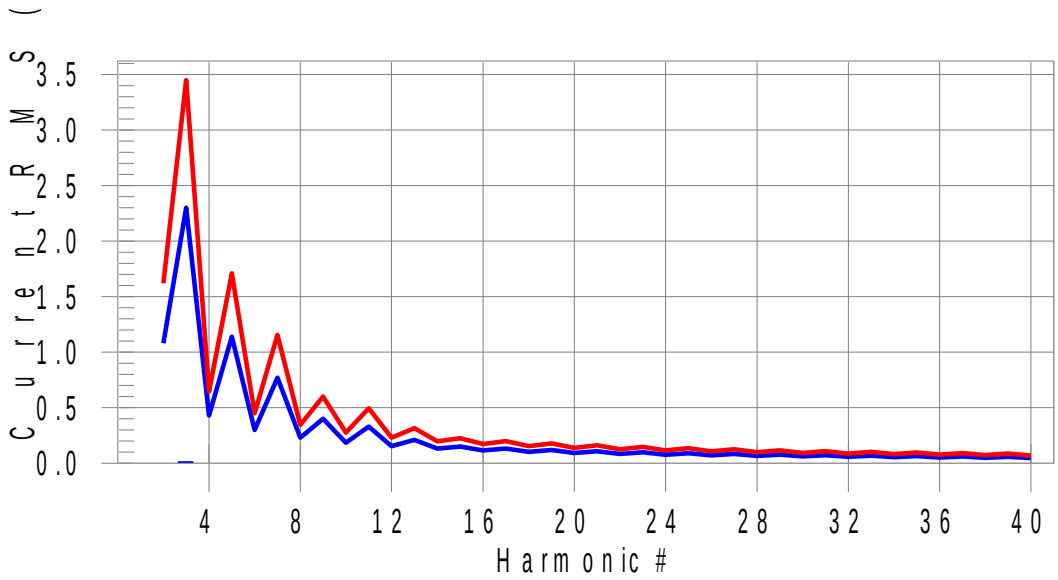
TM-2016T
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass **Worst harmonic was #0 with 0.00% of the limit.**

Current Test Result Summary

Test Result: Pass **Source qualification: Normal**
THC(A): 0.00 **I-THD(%): 0.00** **POHC(A): 0.000** **POHC Limit(A): 0.251**
Highest parameter values during test:

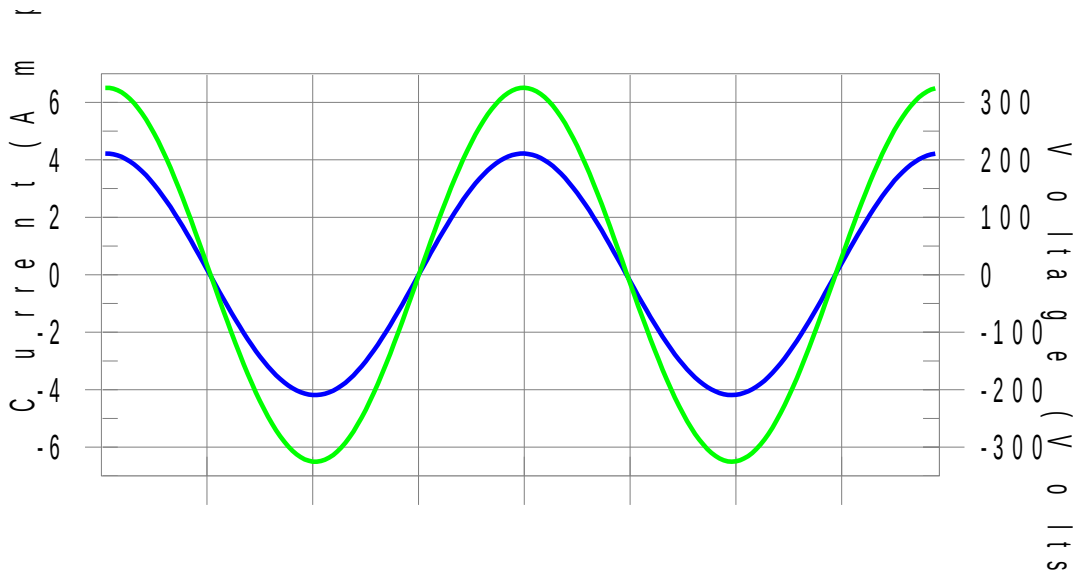
V_RMS (Volts):	**229.37**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**9.015**	**I_RMS (Amps):**	**6.367**
I_Fund (Amps):	**6.349**	**Crest Factor:**	**1.416**
Power (Watts):	**1455.6**	**Power Factor:**	**1.000**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	0.0	0.001	1.620	0.08	Pass
3	0.010	2.300	0.0	0.011	3.450	0.31	Pass
4	0.001	0.430	0.0	0.002	0.645	0.25	Pass
5	0.005	1.140	0.0	0.006	1.710	0.32	Pass
6	0.000	0.300	0.0	0.001	0.450	0.13	Pass
7	0.001	0.770	0.0	0.002	1.155	0.14	Pass
8	0.000	0.230	0.0	0.000	0.345	0.12	Pass
9	0.000	0.400	0.0	0.001	0.600	0.11	Pass
10	0.000	0.184	0.0	0.001	0.276	0.19	Pass
11	0.001	0.330	0.0	0.001	0.495	0.29	Pass
12	0.000	0.153	0.0	0.000	0.230	0.14	Pass
13	0.000	0.210	0.0	0.000	0.315	0.15	Pass
14	0.000	0.131	0.0	0.000	0.197	0.18	Pass
15	0.000	0.150	0.0	0.000	0.225	0.20	Pass
16	0.000	0.115	0.0	0.000	0.173	0.19	Pass
17	0.000	0.132	0.0	0.000	0.199	0.11	Pass
18	0.000	0.102	0.0	0.000	0.153	0.27	Pass
19	0.000	0.118	0.0	0.000	0.178	0.10	Pass
20	0.000	0.092	0.0	0.000	0.138	0.27	Pass
21	0.000	0.107	0.0	0.000	0.161	0.11	Pass
22	0.000	0.084	0.0	0.000	0.125	0.16	Pass
23	0.000	0.098	0.0	0.000	0.147	0.17	Pass
24	0.000	0.077	0.0	0.000	0.115	0.07	Pass
25	0.000	0.090	0.0	0.000	0.135	0.09	Pass
26	0.000	0.071	0.0	0.000	0.106	0.13	Pass
27	0.000	0.083	0.0	0.000	0.125	0.10	Pass
28	0.000	0.066	0.0	0.000	0.099	0.14	Pass
29	0.000	0.078	0.0	0.000	0.116	0.12	Pass
30	0.000	0.061	0.0	0.000	0.092	0.21	Pass
31	0.000	0.073	0.0	0.000	0.109	0.14	Pass
32	0.000	0.058	0.0	0.000	0.086	0.17	Pass
33	0.000	0.068	0.0	0.000	0.102	0.07	Pass
34	0.000	0.054	0.0	0.000	0.081	0.07	Pass
35	0.000	0.064	0.0	0.000	0.096	0.08	Pass
36	0.000	0.051	0.0	0.000	0.077	0.08	Pass
37	0.000	0.061	0.0	0.000	0.091	0.13	Pass
38	0.000	0.048	0.0	0.000	0.073	0.06	Pass
39	0.000	0.058	0.0	0.000	0.087	0.12	Pass
40	0.000	0.046	0.0	0.000	0.069	0.14	Pass

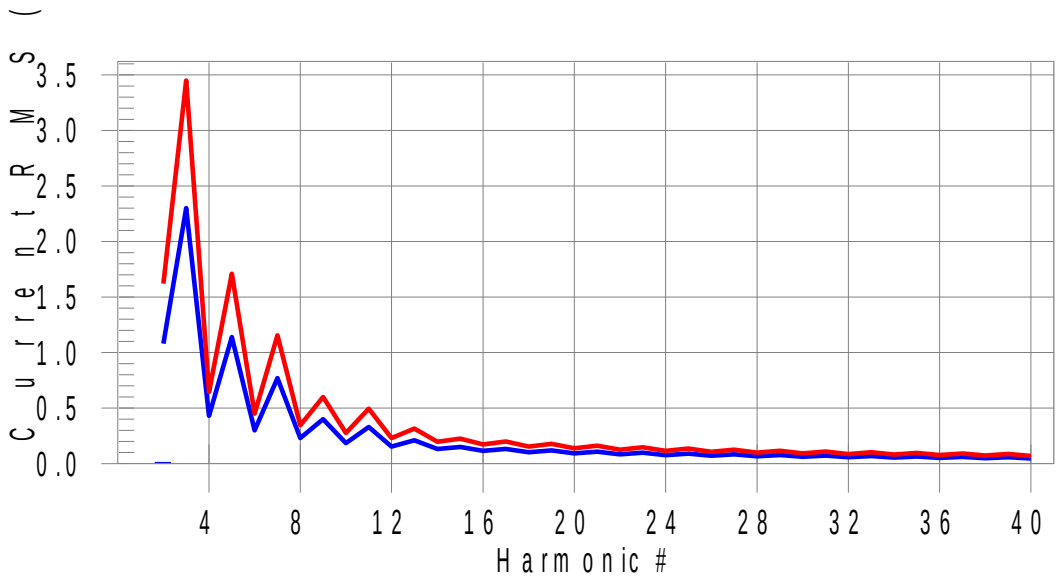
TM-2019
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass **Worst harmonic was #0 with 0.00% of the limit.**

Current Test Result Summary (Run time)

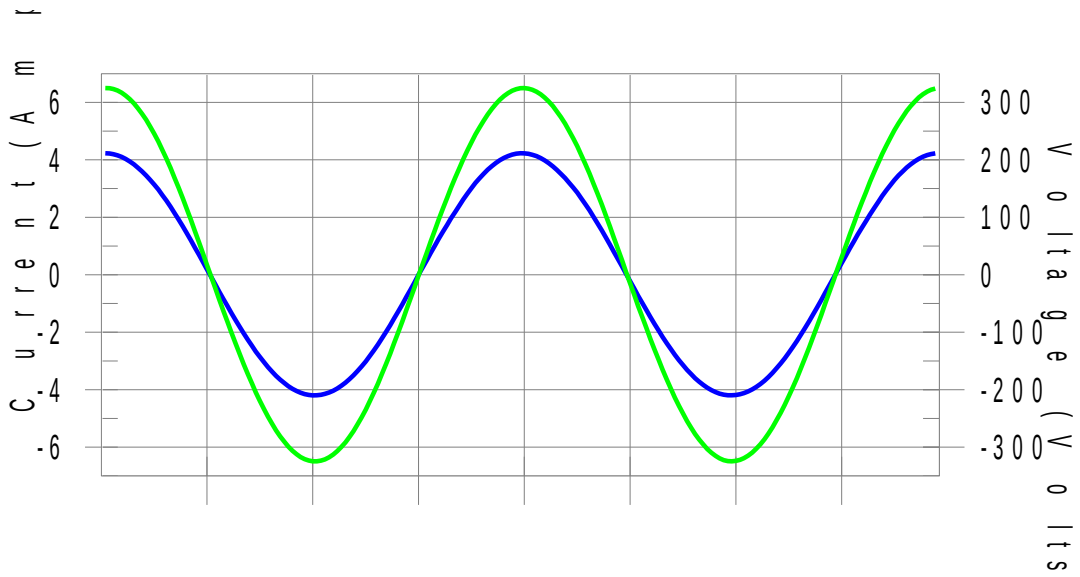
Test Result: Pass **Source qualification: Normal**
THC(A): 0.00 **I-THD(%): 0.00** **POHC(A): 0.000** **POHC Limit(A): 0.251**
Highest parameter values during test:

V_RMS (Volts):	**230.12**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**4.224**	**I_RMS (Amps):**	**2.969**
I_Fund (Amps):	**2.968**	**Crest Factor:**	**1.425**
Power (Watts):	**682.9**	**Power Factor:**	**1.000**

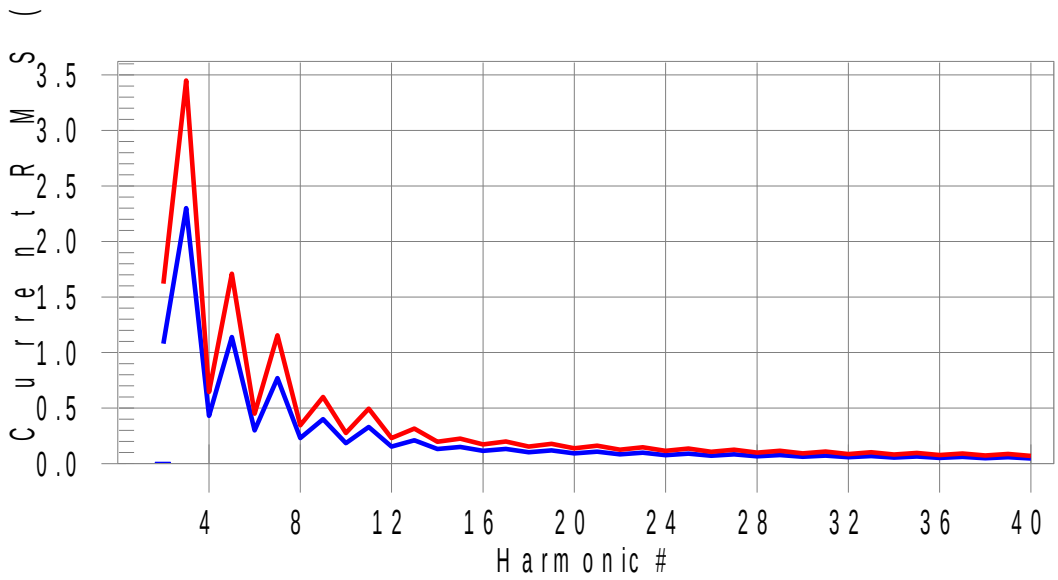
Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.005	1.080	0.0	0.011	1.620	0.65	Pass
3	0.006	2.300	0.0	0.007	3.450	0.22	Pass
4	0.002	0.430	0.0	0.003	0.645	0.39	Pass
5	0.002	1.140	0.0	0.003	1.710	0.17	Pass
6	0.001	0.300	0.0	0.001	0.450	0.25	Pass
7	0.001	0.770	0.0	0.001	1.155	0.10	Pass
8	0.000	0.230	0.0	0.000	0.345	0.11	Pass
9	0.001	0.400	0.0	0.001	0.600	0.19	Pass
10	0.000	0.184	0.0	0.001	0.276	0.20	Pass
11	0.001	0.330	0.0	0.001	0.495	0.14	Pass
12	0.000	0.153	0.0	0.000	0.230	0.11	Pass
13	0.000	0.210	0.0	0.000	0.315	0.11	Pass
14	0.000	0.131	0.0	0.000	0.197	0.15	Pass
15	0.000	0.150	0.0	0.000	0.225	0.08	Pass
16	0.000	0.115	0.0	0.000	0.173	0.16	Pass
17	0.000	0.132	0.0	0.000	0.199	0.08	Pass
18	0.000	0.102	0.0	0.000	0.153	0.14	Pass
19	0.000	0.118	0.0	0.000	0.178	0.08	Pass
20	0.000	0.092	0.0	0.000	0.138	0.21	Pass
21	0.000	0.107	0.0	0.000	0.161	0.09	Pass
22	0.000	0.084	0.0	0.000	0.125	0.08	Pass
23	0.000	0.098	0.0	0.000	0.147	0.04	Pass
24	0.000	0.077	0.0	0.000	0.115	0.09	Pass
25	0.000	0.090	0.0	0.000	0.135	0.06	Pass
26	0.000	0.071	0.0	0.000	0.106	0.07	Pass
27	0.000	0.083	0.0	0.000	0.125	0.09	Pass
28	0.000	0.066	0.0	0.000	0.099	0.14	Pass
29	0.000	0.078	0.0	0.000	0.116	0.09	Pass
30	0.000	0.061	0.0	0.000	0.092	0.12	Pass
31	0.000	0.073	0.0	0.000	0.109	0.08	Pass
32	0.000	0.058	0.0	0.000	0.086	0.14	Pass
33	0.000	0.068	0.0	0.000	0.102	0.06	Pass
34	0.000	0.054	0.0	0.000	0.081	0.08	Pass
35	0.000	0.064	0.0	0.000	0.096	0.07	Pass
36	0.000	0.051	0.0	0.000	0.077	0.07	Pass
37	0.000	0.061	0.0	0.000	0.091	0.08	Pass
38	0.000	0.048	0.0	0.000	0.073	0.07	Pass
39	0.000	0.058	0.0	0.000	0.087	0.09	Pass
40	0.000	0.046	0.0	0.000	0.069	0.14	Pass

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass **Worst harmonic was #0 with 0.00% of the limit.**

Current Test Result Summary (Run time)

Test Result: Pass **Source qualification: Normal**
THC(A): 0.00 **I-THD(%): 0.00** **POHC(A): 0.000** **POHC Limit(A): 0.251**
Highest parameter values during test:

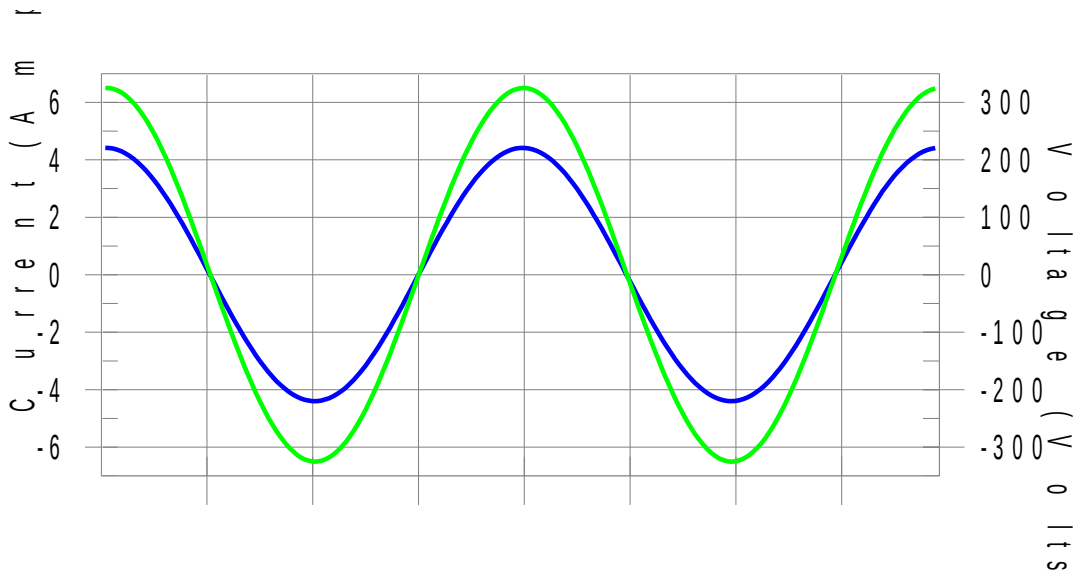
V_RMS (Volts):	229.96	Frequency(Hz):	50.00
I_Peak (Amps):	4.238	I_RMS (Amps):	2.977
I_Fund (Amps):	2.967	Crest Factor:	1.425
Power (Watts):	682.0	Power Factor:	1.000

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.012	1.080	0.0	0.012	1.620	0.75	Pass
3	0.004	2.300	0.0	0.005	3.450	0.15	Pass
4	0.004	0.430	0.0	0.005	0.645	0.76	Pass
5	0.002	1.140	0.0	0.003	1.710	0.18	Pass
6	0.000	0.300	0.0	0.001	0.450	0.17	Pass
7	0.001	0.770	0.0	0.001	1.155	0.13	Pass
8	0.001	0.230	0.0	0.001	0.345	0.36	Pass
9	0.001	0.400	0.0	0.001	0.600	0.16	Pass
10	0.000	0.184	0.0	0.000	0.276	0.09	Pass
11	0.001	0.330	0.0	0.001	0.495	0.16	Pass
12	0.001	0.153	0.0	0.001	0.230	0.26	Pass
13	0.000	0.210	0.0	0.000	0.315	0.12	Pass
14	0.000	0.131	0.0	0.000	0.197	0.11	Pass
15	0.000	0.150	0.0	0.000	0.225	0.09	Pass
16	0.000	0.115	0.0	0.000	0.173	0.23	Pass
17	0.000	0.132	0.0	0.000	0.199	0.11	Pass
18	0.000	0.102	0.0	0.000	0.153	0.15	Pass
19	0.000	0.118	0.0	0.000	0.178	0.07	Pass
20	0.000	0.092	0.0	0.000	0.138	0.11	Pass
21	0.000	0.107	0.0	0.000	0.161	0.12	Pass
22	0.000	0.084	0.0	0.000	0.125	0.06	Pass
23	0.000	0.098	0.0	0.000	0.147	0.13	Pass
24	0.000	0.077	0.0	0.000	0.115	0.12	Pass
25	0.000	0.090	0.0	0.000	0.135	0.07	Pass
26	0.000	0.071	0.0	0.000	0.106	0.08	Pass
27	0.000	0.083	0.0	0.000	0.125	0.05	Pass
28	0.000	0.066	0.0	0.000	0.099	0.18	Pass
29	0.000	0.078	0.0	0.000	0.116	0.12	Pass
30	0.000	0.061	0.0	0.000	0.092	0.09	Pass
31	0.000	0.073	0.0	0.000	0.109	0.09	Pass
32	0.000	0.058	0.0	0.000	0.086	0.15	Pass
33	0.000	0.068	0.0	0.000	0.102	0.09	Pass
34	0.000	0.054	0.0	0.000	0.081	0.07	Pass
35	0.000	0.064	0.0	0.000	0.096	0.12	Pass
36	0.000	0.051	0.0	0.000	0.077	0.12	Pass
37	0.000	0.061	0.0	0.000	0.091	0.05	Pass
38	0.000	0.048	0.0	0.000	0.073	0.12	Pass
39	0.000	0.058	0.0	0.000	0.087	0.07	Pass
40	0.000	0.046	0.0	0.000	0.069	0.11	Pass

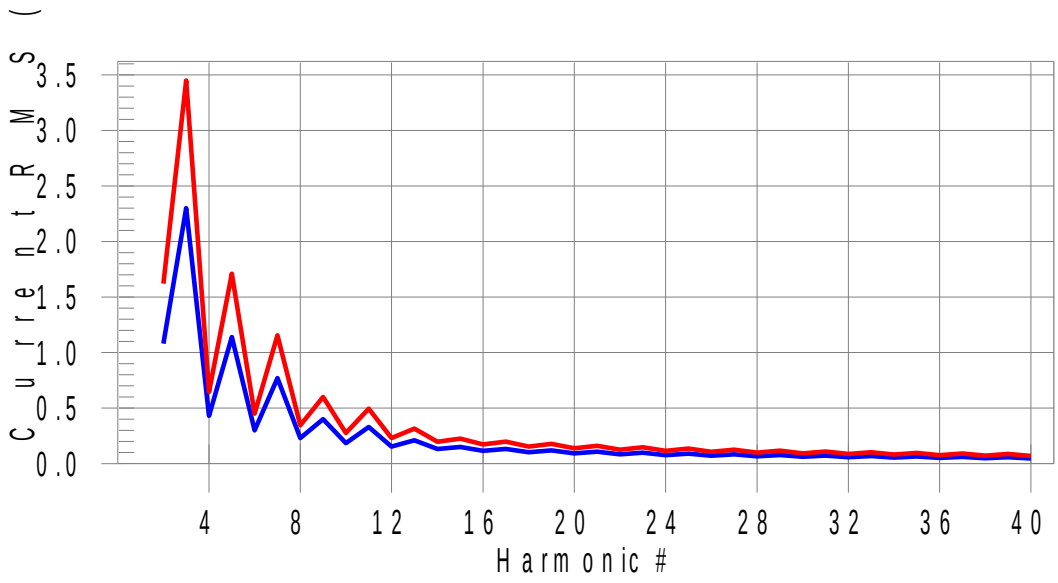
TM-2010F
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H0-0.0% of 150% limit, H0-0% of 100% limit

Current Test Result Summary

Test Result: Pass **Source qualification: Normal**
THC(A): 0.011 **I-THD(%): 0.3** **POHC(A): 0.000** **POHC Limit(A): 0.251**

Highest parameter values during test:

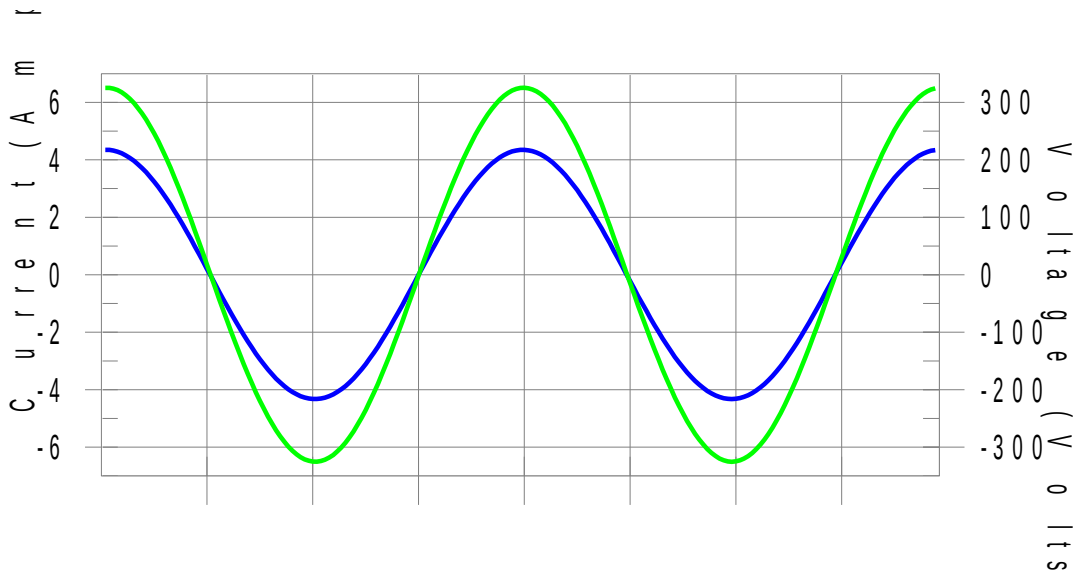
V_RMS (Volts):	230.11	Frequency(Hz):	50.00
I_Peak (Amps):	4.425	I_RMS (Amps):	3.115
I_Fund (Amps):	3.075	Crest Factor:	3.250
Power (Watts):	707.4	Power Factor:	1.000

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.009	1.080	N/A	0.011	1.620	N/A	Pass
3	0.004	2.300	N/A	0.009	3.450	N/A	Pass
4	0.002	0.430	N/A	0.005	0.645	N/A	Pass
5	0.001	1.140	N/A	0.003	1.710	N/A	Pass
6	0.001	0.300	N/A	0.001	0.450	N/A	Pass
7	0.001	0.770	N/A	0.002	1.155	N/A	Pass
8	0.000	0.230	N/A	0.003	0.345	N/A	Pass
9	0.001	0.400	N/A	0.002	0.600	N/A	Pass
10	0.000	0.184	N/A	0.001	0.276	N/A	Pass
11	0.000	0.330	N/A	0.001	0.495	N/A	Pass
12	0.000	0.153	N/A	0.001	0.230	N/A	Pass
13	0.000	0.210	N/A	0.001	0.315	N/A	Pass
14	0.000	0.131	N/A	0.001	0.197	N/A	Pass
15	0.000	0.150	N/A	0.001	0.225	N/A	Pass
16	0.000	0.115	N/A	0.001	0.173	N/A	Pass
17	0.000	0.132	N/A	0.000	0.198	N/A	Pass
18	0.000	0.102	N/A	0.001	0.153	N/A	Pass
19	0.000	0.118	N/A	0.001	0.178	N/A	Pass
20	0.000	0.092	N/A	0.001	0.138	N/A	Pass
21	0.000	0.107	N/A	0.001	0.161	N/A	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.000	0.098	N/A	0.000	0.147	N/A	Pass
24	0.000	0.077	N/A	0.001	0.115	N/A	Pass
25	0.000	0.090	N/A	0.001	0.135	N/A	Pass
26	0.000	0.071	N/A	0.001	0.107	N/A	Pass
27	0.000	0.083	N/A	0.000	0.125	N/A	Pass
28	0.000	0.066	N/A	0.000	0.099	N/A	Pass
29	0.000	0.078	N/A	0.001	0.116	N/A	Pass
30	0.000	0.061	N/A	0.001	0.092	N/A	Pass
31	0.000	0.073	N/A	0.001	0.109	N/A	Pass
32	0.000	0.058	N/A	0.001	0.086	N/A	Pass
33	0.000	0.068	N/A	0.000	0.102	N/A	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.000	0.064	N/A	0.001	0.096	N/A	Pass
36	0.000	0.051	N/A	0.001	0.077	N/A	Pass
37	0.000	0.061	N/A	0.000	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.000	0.058	N/A	0.000	0.087	N/A	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

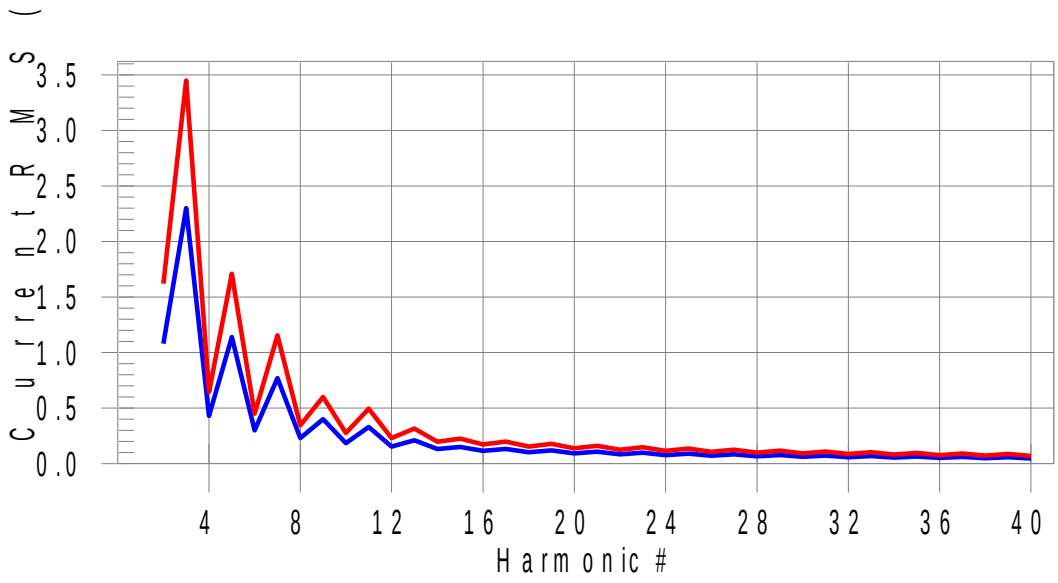
TM-2011P
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H0-0.0% of 150% limit, H0-0% of 100% limit

Current Test Result Summary

Test Result: Pass **Source qualification: Normal**
THC(A): 0.010 **I-THD(%): 0.3** **POHC(A): 0.000** **POHC Limit(A): 0.251**

Highest parameter values during test:

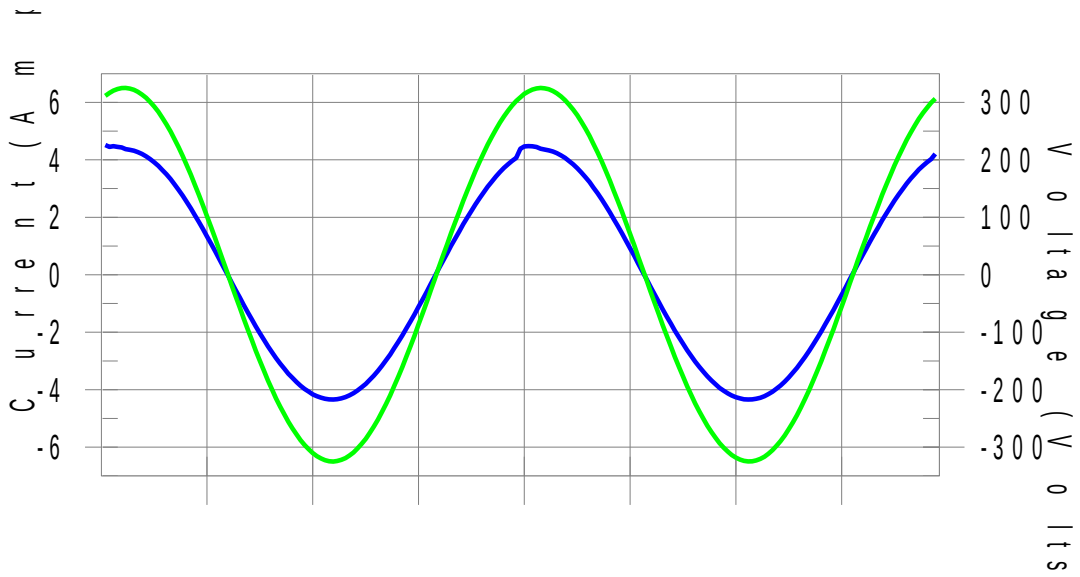
V_RMS (Volts):	230.09	Frequency(Hz):	50.00
I_Peak (Amps):	4.357	I_RMS (Amps):	3.066
I_Fund (Amps):	3.066	Crest Factor:	1.423
Power (Watts):	705.1	Power Factor:	1.000

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.008	1.080	N/A	0.009	1.620	N/A	Pass
3	0.005	2.300	N/A	0.006	3.450	N/A	Pass
4	0.002	0.430	N/A	0.003	0.645	N/A	Pass
5	0.001	1.140	N/A	0.002	1.710	N/A	Pass
6	0.001	0.300	N/A	0.001	0.450	N/A	Pass
7	0.001	0.770	N/A	0.001	1.155	N/A	Pass
8	0.000	0.230	N/A	0.001	0.345	N/A	Pass
9	0.001	0.400	N/A	0.001	0.600	N/A	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.000	0.330	N/A	0.000	0.495	N/A	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.000	0.210	N/A	0.000	0.315	N/A	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.000	0.150	N/A	0.000	0.225	N/A	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.000	0.132	N/A	0.000	0.198	N/A	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.000	0.118	N/A	0.000	0.178	N/A	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.000	0.107	N/A	0.000	0.161	N/A	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.000	0.098	N/A	0.000	0.147	N/A	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.000	0.090	N/A	0.000	0.135	N/A	Pass
26	0.000	0.071	N/A	0.000	0.107	N/A	Pass
27	0.000	0.083	N/A	0.000	0.125	N/A	Pass
28	0.000	0.066	N/A	0.000	0.099	N/A	Pass
29	0.000	0.078	N/A	0.000	0.116	N/A	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.000	0.073	N/A	0.000	0.109	N/A	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.000	0.068	N/A	0.000	0.102	N/A	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.000	0.064	N/A	0.000	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.000	0.061	N/A	0.000	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.000	0.058	N/A	0.000	0.087	N/A	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

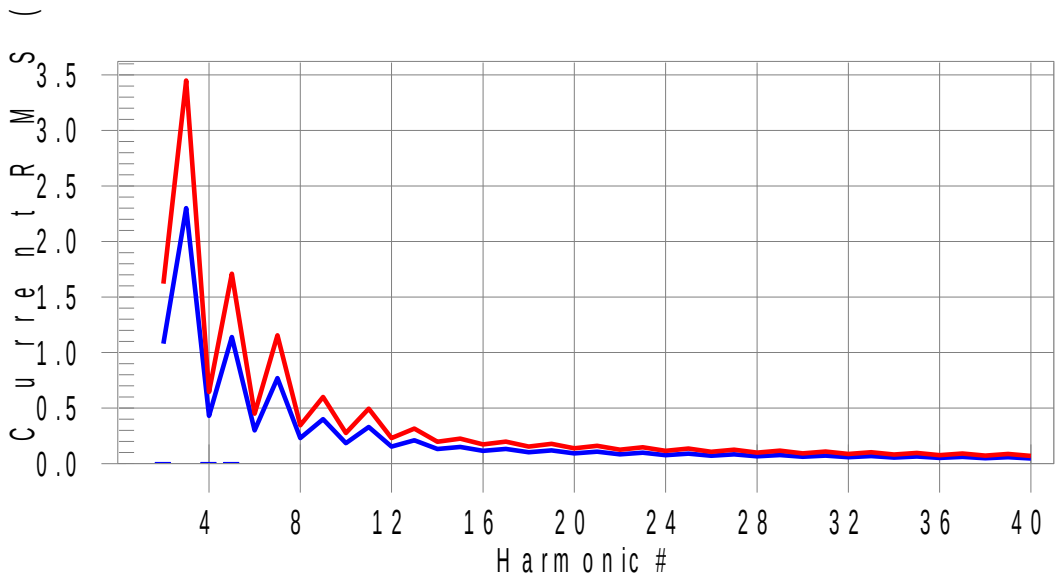
TM-2006MJ
Harmonic

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H0-0.0% of 150% limit, H0-0% of 100% limit

Current Test Result Summary

Test Result: Pass **Source qualification: Normal**
THC(A): 0.035 **I-THD(%): 1.1** **POHC(A): 0.008** **POHC Limit(A): 0.251**

Highest parameter values during test:

V_RMS (Volts):	230.10	Frequency(Hz):	50.00
I_Peak (Amps):	4.518	I_RMS (Amps):	3.093
I_Fund (Amps):	3.051	Crest Factor:	5.577
Power (Watts):	701.5	Power Factor:	1.000

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.011	1.080	N/A	0.013	1.620	N/A	Pass
3	0.007	2.300	N/A	0.009	3.450	N/A	Pass
4	0.011	0.430	N/A	0.012	0.645	N/A	Pass
5	0.011	1.140	N/A	0.012	1.710	N/A	Pass
6	0.010	0.300	N/A	0.011	0.450	N/A	Pass
7	0.010	0.770	N/A	0.011	1.155	N/A	Pass
8	0.009	0.230	N/A	0.010	0.345	N/A	Pass
9	0.009	0.400	N/A	0.010	0.600	N/A	Pass
10	0.008	0.184	N/A	0.009	0.276	N/A	Pass
11	0.007	0.330	N/A	0.008	0.495	N/A	Pass
12	0.007	0.153	N/A	0.007	0.230	N/A	Pass
13	0.006	0.210	N/A	0.007	0.315	N/A	Pass
14	0.006	0.131	N/A	0.006	0.197	N/A	Pass
15	0.005	0.150	N/A	0.005	0.225	N/A	Pass
16	0.005	0.115	N/A	0.005	0.173	N/A	Pass
17	0.004	0.132	N/A	0.004	0.198	N/A	Pass
18	0.004	0.102	N/A	0.004	0.153	N/A	Pass
19	0.003	0.118	N/A	0.003	0.178	N/A	Pass
20	0.003	0.092	N/A	0.003	0.138	N/A	Pass
21	0.003	0.107	N/A	0.003	0.161	N/A	Pass
22	0.003	0.084	N/A	0.003	0.125	N/A	Pass
23	0.003	0.098	N/A	0.003	0.147	N/A	Pass
24	0.003	0.077	N/A	0.003	0.115	N/A	Pass
25	0.003	0.090	N/A	0.003	0.135	N/A	Pass
26	0.003	0.071	N/A	0.003	0.107	N/A	Pass
27	0.003	0.083	N/A	0.003	0.125	N/A	Pass
28	0.002	0.066	N/A	0.003	0.099	N/A	Pass
29	0.002	0.078	N/A	0.003	0.116	N/A	Pass
30	0.003	0.061	N/A	0.003	0.092	N/A	Pass
31	0.002	0.073	N/A	0.003	0.109	N/A	Pass
32	0.002	0.058	N/A	0.002	0.086	N/A	Pass
33	0.002	0.068	N/A	0.002	0.102	N/A	Pass
34	0.002	0.054	N/A	0.002	0.081	N/A	Pass
35	0.002	0.064	N/A	0.002	0.096	N/A	Pass
36	0.002	0.051	N/A	0.002	0.077	N/A	Pass
37	0.002	0.061	N/A	0.002	0.091	N/A	Pass
38	0.002	0.048	N/A	0.002	0.073	N/A	Pass
39	0.002	0.058	N/A	0.002	0.087	N/A	Pass
40	0.002	0.046	N/A	0.002	0.069	N/A	Pass

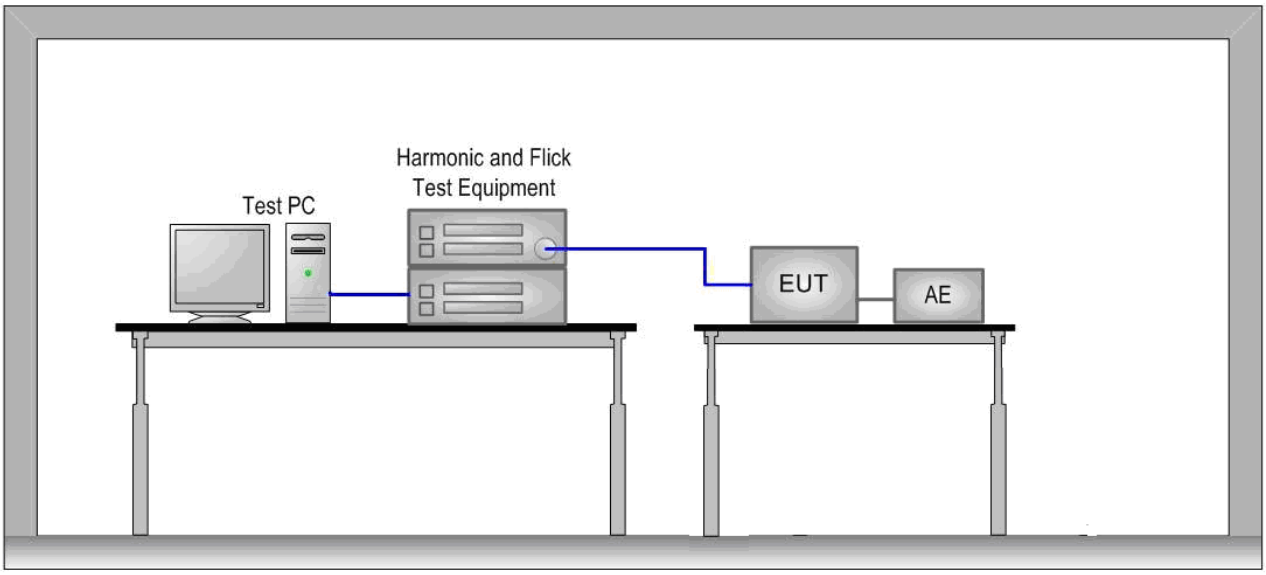
4.5 Voltage Changes, Voltage Fluctuations and Flicker

This part is concerned with the limitation of voltage fluctuations and flicker impressed on the public low-voltage system.

4.5.1 Limits

Value	Limit
Pst	1,0
Plt	0,65
dt	3,3%
dc	3,3%
dmax	4,0%

4.5.2 Measurementest procedure



The equipment under test is placed on a wooden table with a height of 0,8 m in the EMC lab. The voltage fluctuations and flicker were measured at the supply terminals of the EUT.

4.5.3 Results

TM-2001FJ

Parameter values recorded during the test:

Vrms at the end of test (Volt):	**229.93**			
Time(mS) > dt:	**0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.59**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.59**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.202**	**Test limit:**	**1.000**	**Pass**

TM-2001JT

Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.98			
Time(mS) > dt:	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.60	Test limit (%):	3.30	Pass
Highest dmax (%):	0.63	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.245	Test limit:	1.000	Pass

TM-2005FJ

Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.94			
Time(mS) > dt:	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.62	Test limit (%):	3.30	Pass
Highest dmax (%):	0.67	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.299	Test limit:	1.000	Pass

TM-2005JT

Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.94			
Time(mS) > dt:	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.60	Test limit (%):	3.30	Pass
Highest dmax (%):	0.61	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.272	Test limit:	1.000	Pass

TM-2006FJ

Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.04			
Time(mS) > dt:	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.60	Test limit (%):	3.30	Pass
Highest dmax (%):	0.65	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.263	Test limit:	1.000	Pass

TM-2006JT

Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.93			
Time(mS) > dt:	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.60	Test limit (%):	3.30	Pass
Highest dmax (%):	0.65	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.275	Test limit:	1.000	Pass

TM-2009FJ

Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.94			
Time(mS) > dt:	0	Test limit (mS):	500.0	Pass
Highest dc (%):	1.00	Test limit (%):	3.30	Pass
Highest dmax (%):	1.27	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.397	Test limit:	1.000	Pass

TM-2015T

Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.95			
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	-1.24	Test limit (%):	3.30	Pass
Highest dmax (%):	-1.15	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.275	Test limit:	1.000	Pass

TM-2016T

Parameter values recorded during the test:

Vrms at the end of test (Volt):	**228.21**			
Time(mS) > dt:	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.76**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.77**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.206**	**Test limit:**	**1.000**	**Pass**

TM-2019

Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.07**			
Time(mS) > dt:	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**-0.60**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.64**	**Test limit (%):**	**6.00**	**Pass**
Highest Pst (10 min. period):	**0.000**	**Test limit:**	**1.000**	**Pass**

TM-2020T

Parameter values recorded during the test:

Vrms at the end of test (Volt):	**229.90**			
Time(mS) > dt:	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.58**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.73**	**Test limit (%):**	**6.00**	**Pass**
Highest Pst (10 min. period):	**0.000**	**Test limit:**	**1.000**	**Pass**

TM-2010F

Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.11**			
T-max (mS):	**0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.59**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.63**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.201**	**Test limit:**	**1.000**	**Pass**

TM-2011P

Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.05**			
T-max (mS):	**0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.61**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**-0.66**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.272**	**Test limit:**	**1.000**	**Pass**

TM-2006MJ

Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.10**			
T-max (mS):	**0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.60**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.63**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.183**	**Test limit:**	**1.000**	**Pass**

5 Immunity Test

5.1 Performance Criteria Description in Clause 6 of EN 55014-2

Criterion A:	The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
Criterion B:	The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation and from what the user may reasonably expect from the apparatus if used as intended.
Criterion C:	Temporary loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

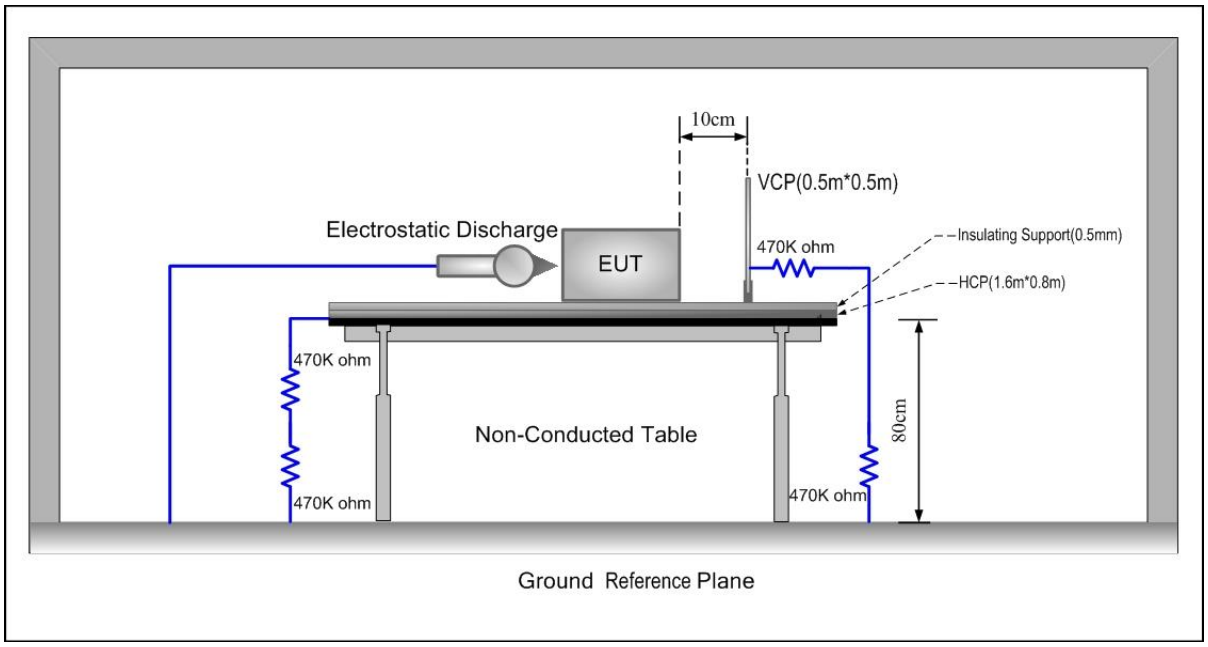
5.2 Classification of apparatus

Category I:	equipment containing no electronic control circuitry.
Category II:	mains operated equipment containing electronic control circuitry with no clock frequency higher than 15 MHz.
Category III:	battery operated equipment not included in Category I. This category also includes equipment provided with rechargeable batteries, which can be charged, directly or indirectly, from the mains. Accordingly, this equipment shall also be subjected to the test requirements for mains operated equipment but only when testing the charging function If the equipment can operate its intended functions when connected, directly or indirectly to the mains, then it is not battery operated. Accordingly, it shall be classified as Category II, Category IV or Category V, as applicable, and subjected to the corresponding test requirements when in mains operation.
Category IV:	mains operated equipment containing electronic control circuitry with a highest clock frequency greater than 15 MHz but lower than or equal to 200 MHz.
Category V:	mains operated equipment containing electronic control circuitry with a highest clock frequency greater than 200 MHz.

The EUT belongs to Category II.

5.3 ESD

5.3.1 Test Procedures



1. Contact discharge was applied only to conductive surfaces of the EUT. Air discharge was applied only to non-conducted surfaces of the EUT.
2. The EUT was put on a 0.8m high wooden table for table-top equipment or 0.1m high for floor standing equipment standing on the ground reference plane (GRP).
3. A horizontal coupling plane(HCP) 1.6m by 0.8m in size was placed on the table, and the EUT with its cables were isolated from the HCP by an insulating support thick than 0.5mm. The VCP 0.5m by 0.5m in size while HCP were constructed from the same material type and thickness as that of the GRP, and connected to the GRP via a 470kΩ resistor at each end. The distance between EUT and any of the other metallic surfaces excepted the GRP, HCP and VCP was greater than 1m.
4. During the contact discharges, the tip of the discharge electrode was touching the EUT before the discharge switch is operated. During the air discharges, the round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the ESD generator was removed from the EUT, the generator is then retriggered for a new single discharge. For ungrounded product, a discharge cable with two resistances was used after each discharge to remove remnant electrostatic voltage. 10 times of each polarity single discharge were applied to HCP and VCP.

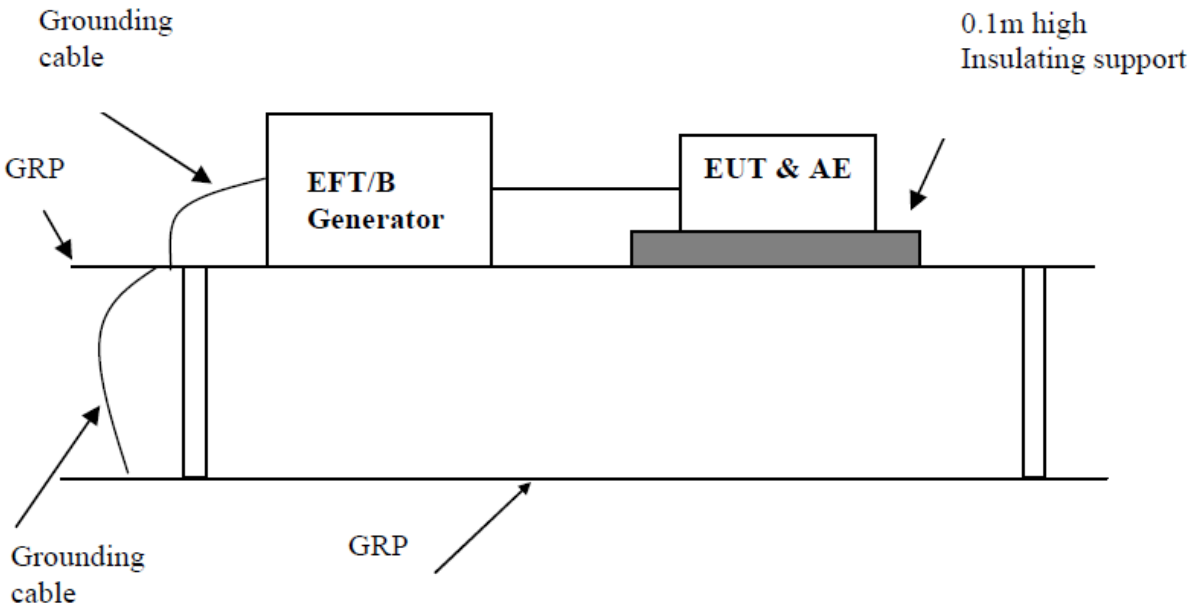
5.3.2 Results

Test point	Table (T) Floor (F)	Contact (C) Air (A)	Voltage (kV)	Number of discharge	Polarity (+ / -)	Opinion
Air discharge	T	A	8	20	+ / -	A
Contact discharge	T	C	4	20	+ / -	A
HCP	T	C	4	20	+ / -	A
VCP	T	C	4	20	+ / -	A

A: no loss of function.

5.4 Electrical Fast Transients

5.4.1 Measurement procedure



1. The EUT was placed on a ground reference plane(GRP) insulated by an insulating support 0,1 m thick and the GRP was placed on a 0.8m high wooden table for table-top equipment. For floor standing equipment, the EUT was placed on a 0.1m high wooden support above the GRP.
2. The GRP shall project beyond the EUT and the clamp by at least 0.1m on all sides. The distance between the EUT and any other of the metallic surface except the GRP was greater than 0.5m. All cables to the EUT was placed on the insulation support 0.1m above GRP. Cables not subject to EFT was routed as far as possible from cable under test to minimize the coupling between the cables.
3. The length of signal and power cable between the EUT and EFT generator was 0.5m. If the cable is a non-detachable supply cable more than 0.5m, the excess length of this cable shall be folded to avoid a flat coil and situated at a distance of 0.1m above the GRP.

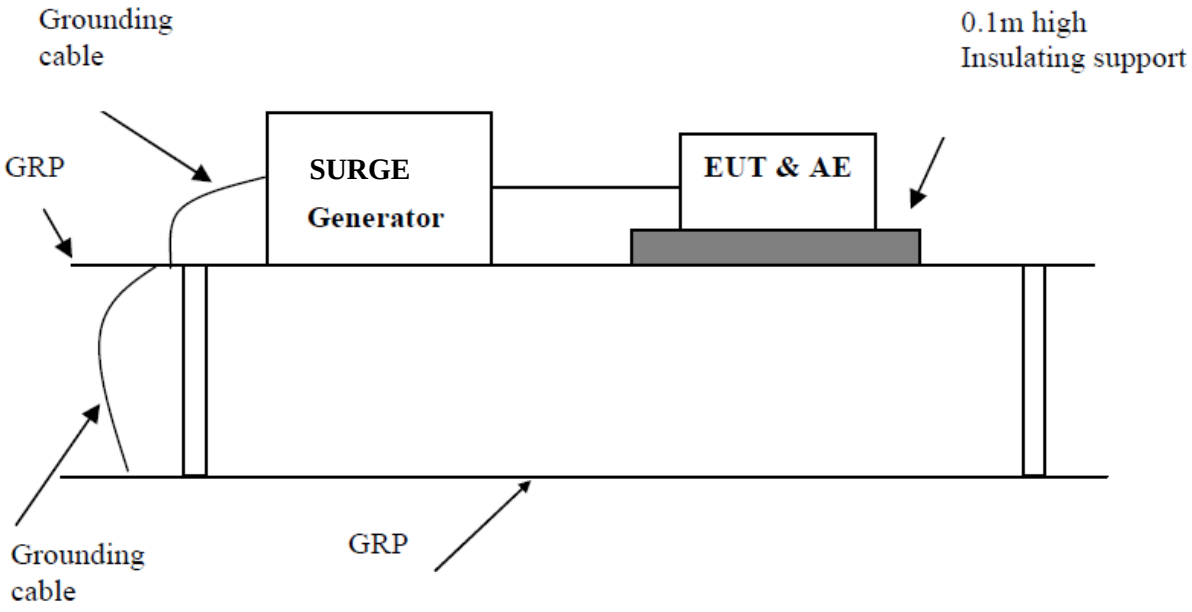
5.4.2 Results

Test port	Voltage (kV)	Polarity (+ / -)	Duration (s or min)	Waveform Tr / Th	Repetition Frequency (kHz)	Opinion
AC power line	1	+ / -	2 min	5/50 ns	5	A

A: no loss of function.

5.5 Surge Immunity

5.5.1 Measurement procedure



1. The EUT was placed on a ground reference plane(GRP) insulated by an insulating support 0,1 m thick and the GRP was placed on a 0.8m high wooden table for table-top equipment. For floor standing equipment, the EUT was placed on a 0.1m high wooden support above the GRP.
2. The 1,2/50 μs surge was to be applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks were required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines and to provide sufficient decoupling impedance to the surge wave so that the specified wave may be applied on the lines under test.
3. The positive pulses are applied 90° relative to the phase angle of the a.c. line voltage to the equipment under test, and the negative pulses are applied 270° relative to the phase angle of the a.c. line voltage to the equipment under test.

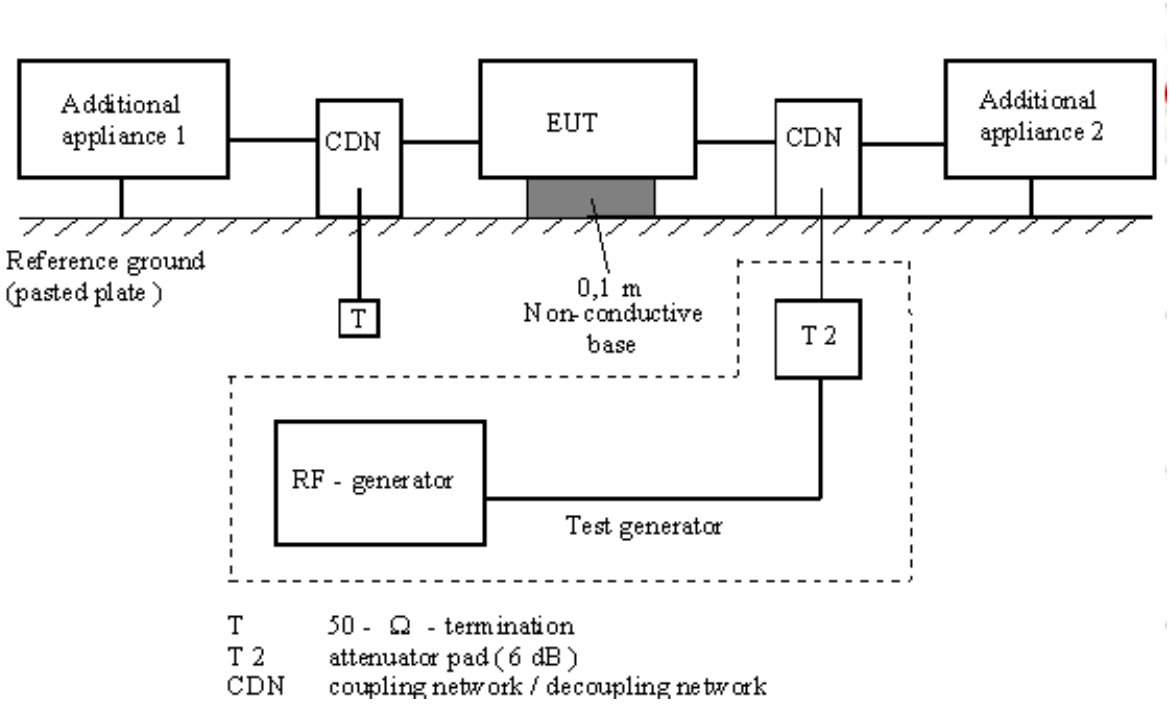
5.5.2 Results

Test mode	Polarity (+ / -)	Voltage (kV)	Waveform Tr / Th	Number of pulses	Opinion
Live-Neutral	+ / -	1	1.2/50 μs	5	B
Live-PE	+ / -	2	1.2/50 μs	5	B
Neutral-PE	+ / -	2	1.2/50 μs	5	B

A: no loss of function.
B: the appliance could not work normally during the test, but it would recover after test.

5.6 Injected currents (RF continues conducted)

5.6.1 Measurement procedure



1. The EUT was placed on an insulating support of 0.1m height above a ground reference Plane, arranged and connected to satisfy its functional requirement. All cables exiting the EUT was supported at a height of at least 30 mm above the ground reference plane.
2. The coupling and decoupling devices were required, they were located between 0,1 m and 0,3 m from the EUT. This distance was to be measured horizontally from the projection of the EUT on to the ground reference plane to the coupling and decoupling device.
3. The frequency range was swept from 150 kHz to 230 MHz, using the signal levels established during the setting process, and with the disturbance signal 80 % amplitude modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or to change coupling devices as necessary. Where the frequency was swept incrementally, the step size does not exceed 1 % of the preceding frequency value. The dwell time of the amplitude modulated carrier at each frequency was not less than the time necessary for the EUT to be exercised and to respond, and was not less than 3s.

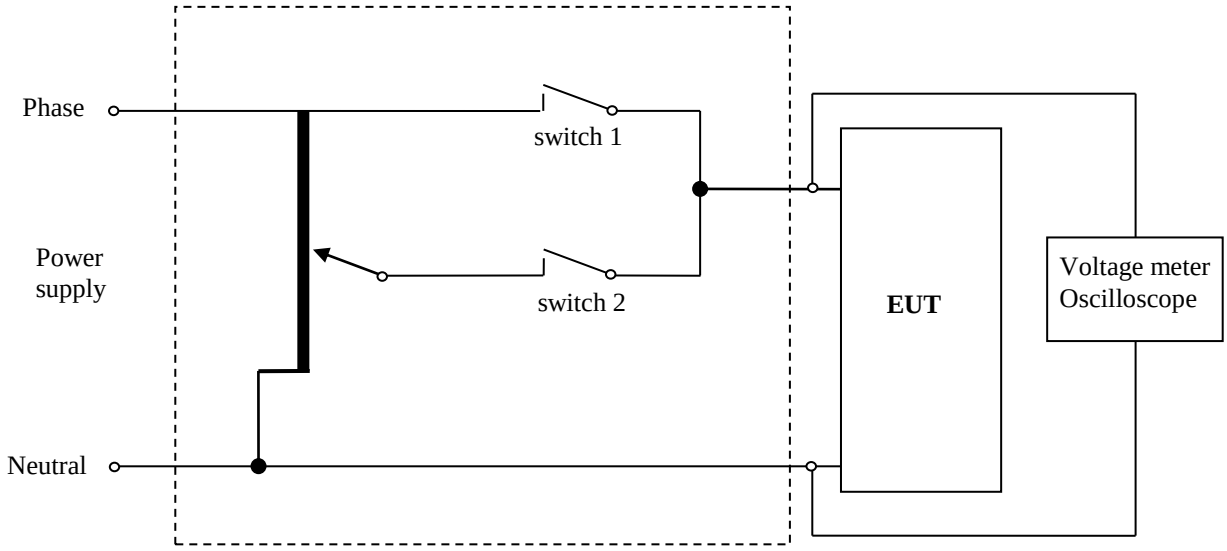
5.6.2 Results

Test port	Voltage (e.m.f.)	Modulation	Frequency Range	Opinion
AC power line	3 V	80% AM 1 kHz	150 kHz - 230 MHz	A

A: no loss of function.

5.7 Voltage dips and Interruption

5.7.1 Measurement procedure



1. The EUT was placed on a ground reference plane(GRP) insulated by an insulating support 0,1 m thick and the GRP was placed on a 0.8m high wooden table for table-top equipment. For floor standing equipment, the EUT was placed on a 0.1m high wooden support above the GRP.
2. The test was performed with the EUT connected to the test generator with the shortest power supply cable as specified by the EUT manufacturer. Voltage change shall occur at zero crossing.
3. The EUT was tested for each selected combination of test level and duration with a sequence of three dips /interruptions with intervals of 10 s minimum. Each representative mode of operation was tested.

5.7.2 Results

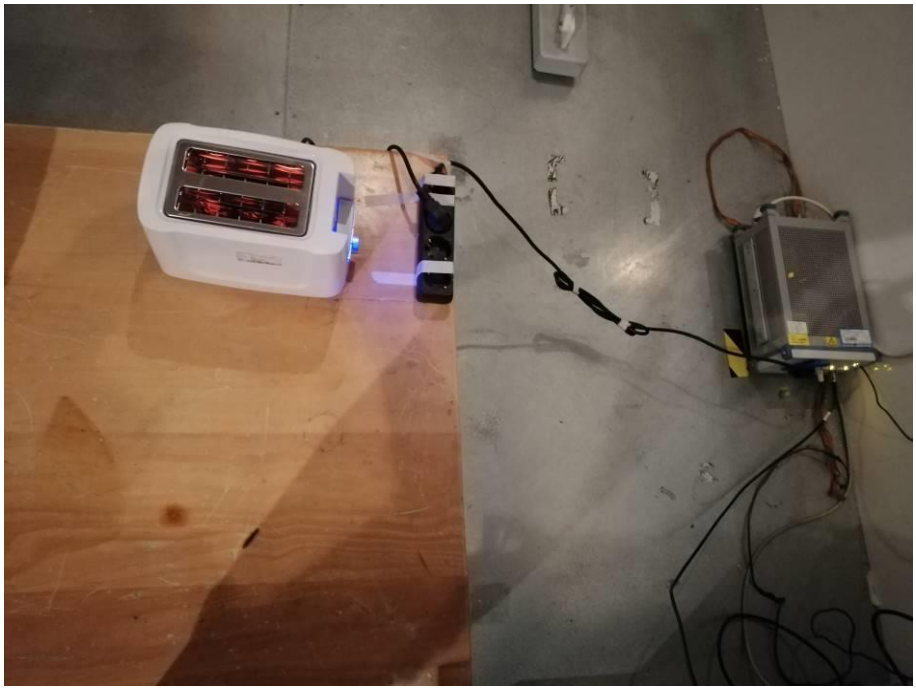
Reduction of supply voltage of	Voltage in % (in V)	Duration in parts of period (in ms)	Opinion
interruption	0 % (0V)	0,5 (10 ms)	A
60 %	40 % (92 V)	10 (200 ms)	B
30 %	70 % (161 V)	25 (500 ms)	B

A: no loss of function.
B: the appliance could not work normally during the test, but it would recover after test.

6 Test Setup Photos

Harmonic & Flicker

Conducted Emission & Click

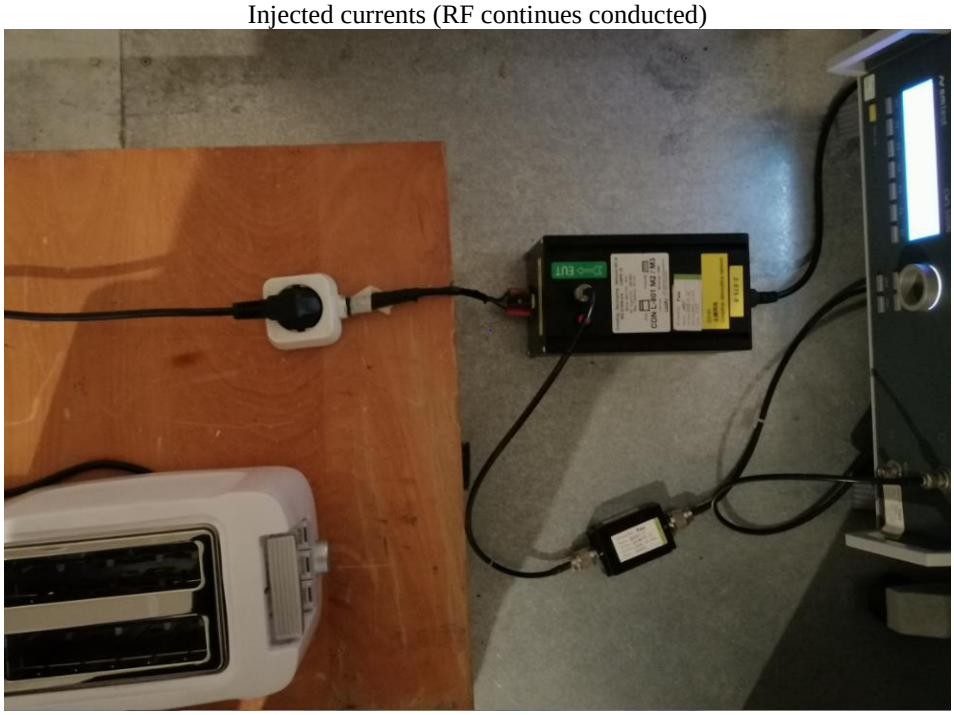


Disturbance power

ESD

Electrical Fast Transients, Surge & Dips

Injected currents (RF continues conducted)



7 EUT Photos

Photo 1.
Overall view for TM-2001 series

Photo 2.
Internal view for TM-2001, TM-2001J, TM-2001T, TM-2001JT

Photo 3.
Internal view for TM-2001F, TM-2001FJ, TM-2001FT and TM-2001FJT

Photo 4.
PCB view of TM-2001, TM-2001J, TM-2001F, TM-2001FJ

Photo 5.
PCB view of TM-2001, TM-2001J, TM-2001F, TM-2001FJ

Photo 6.
PCB view of TM-2001T, TM-2001JT, TM-2001FT, TM-2001FJT

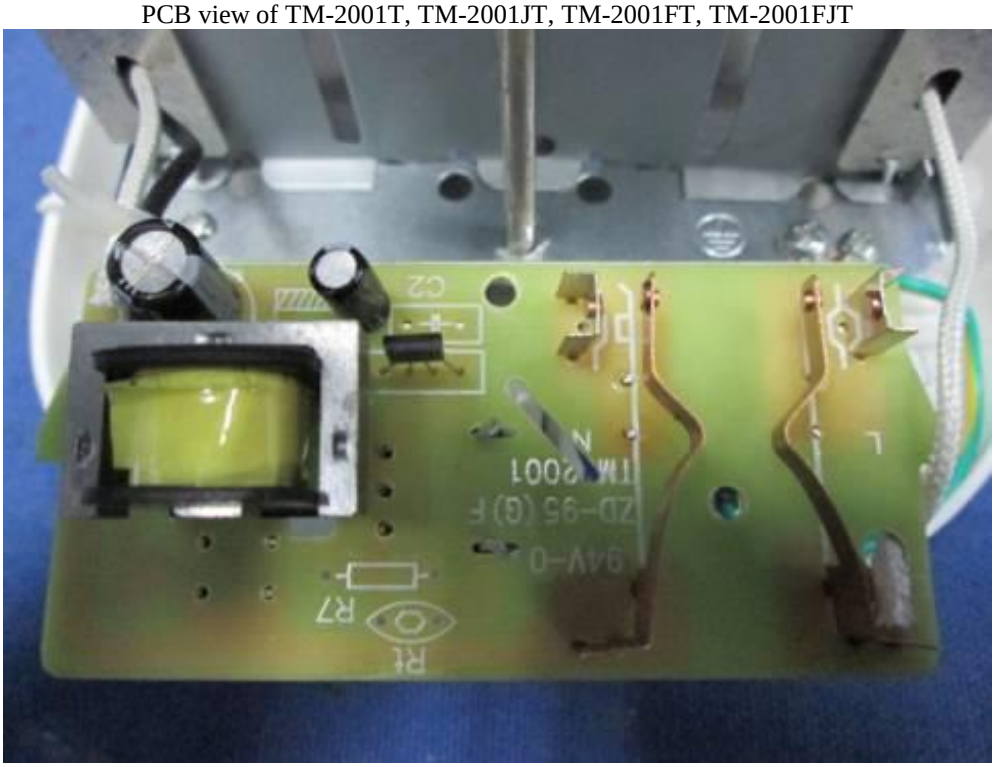


Photo 7.
PCB rear view for TM-2001T, TM-2001JT, TM-2001FT, TM-2001FJT

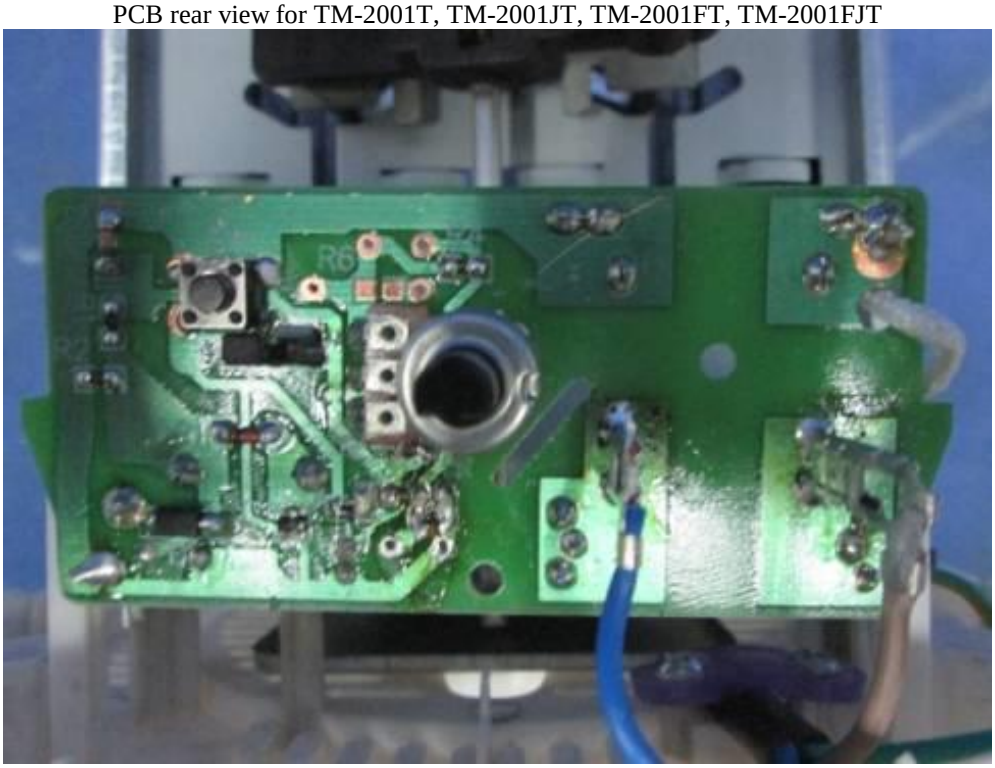


Photo 8.
Overall view for TM-2005 series

Photo 9.
Internal view for TM-2005, TM-2005J, TM-2005T, TM-2005JT

Photo 10.
Internal view for TM-2005, TM-2005J, TM-2005T, TM-2005JT

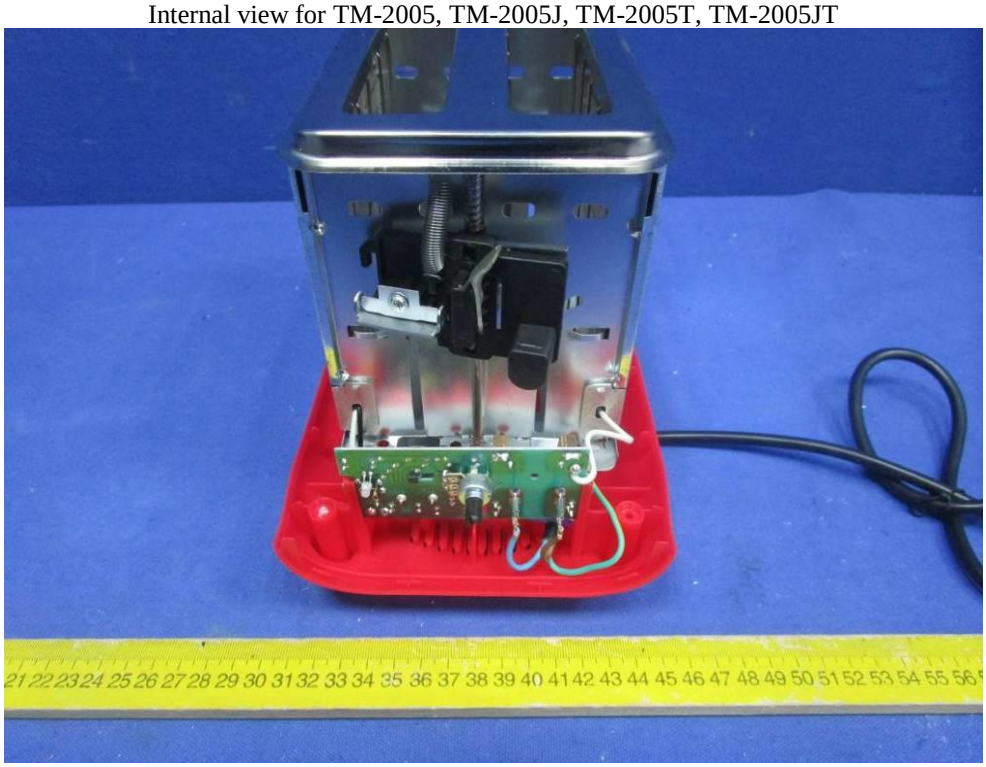


Photo 11.
PCB view of TM-2005, TM-2005J, TM-2005F, TM-2005FJ

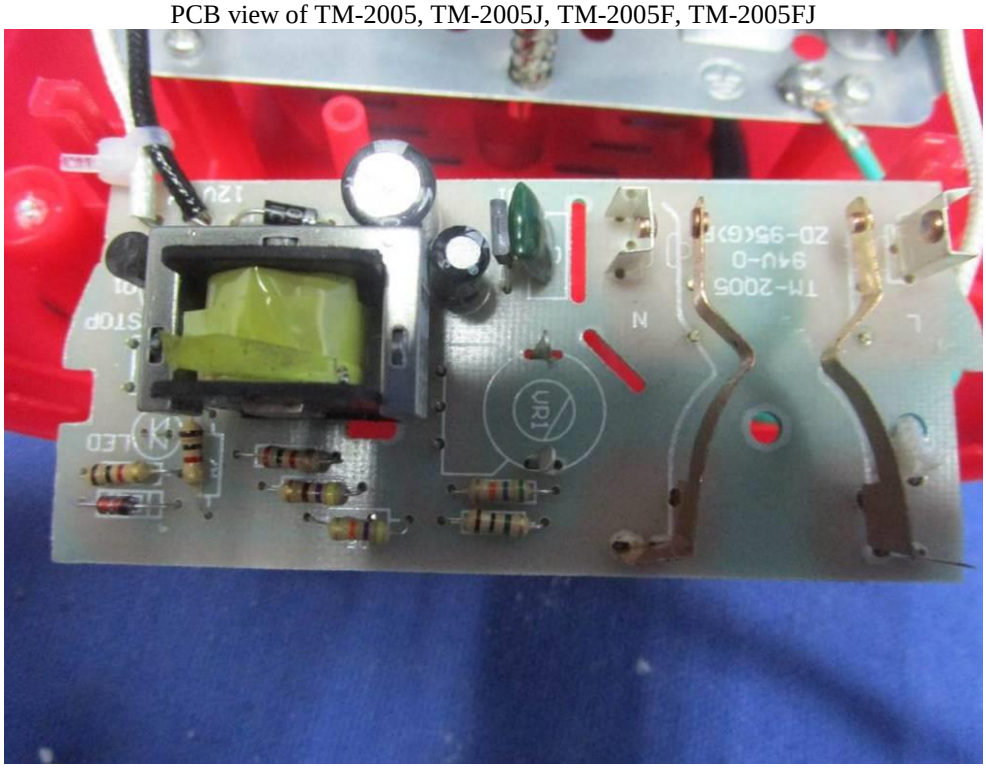


Photo 12.
PCB rear view for TM-2005, TM-2005J, TM-2005F, TM-2005FJ

Photo 13.
PCB view of TM-2005T, TM-2005JT, TM-2005FT, TM-2005FJT

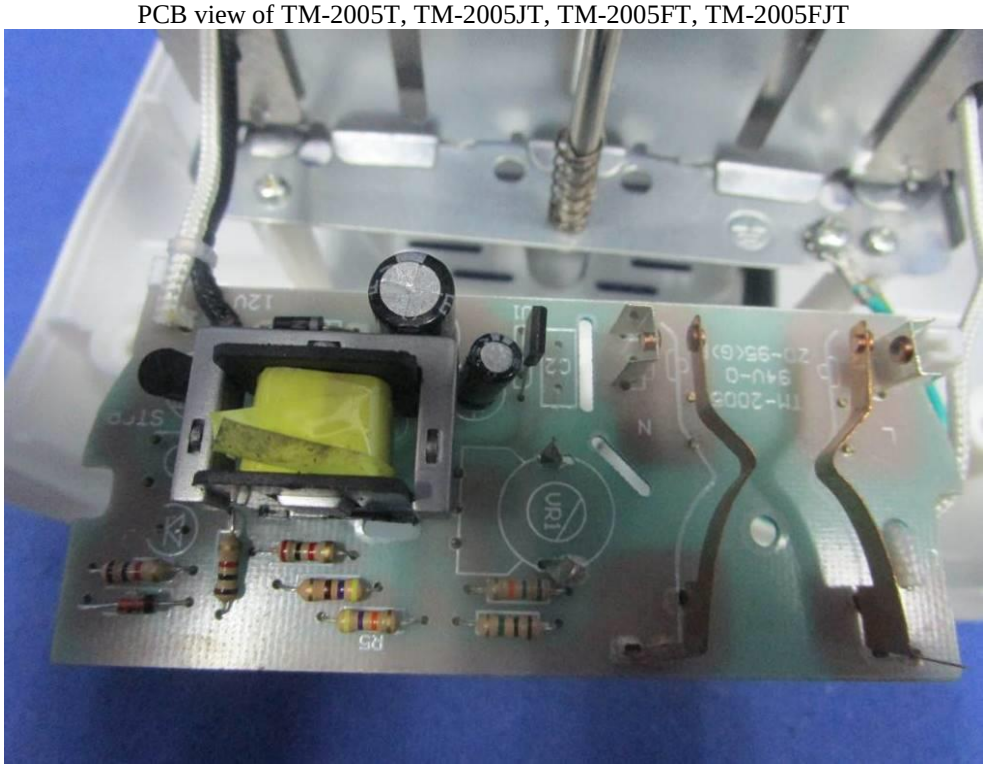


Photo 14.
PCB rear view for TM-2005T, TM-2005JT, TM-2005FT, TM-2005FJT

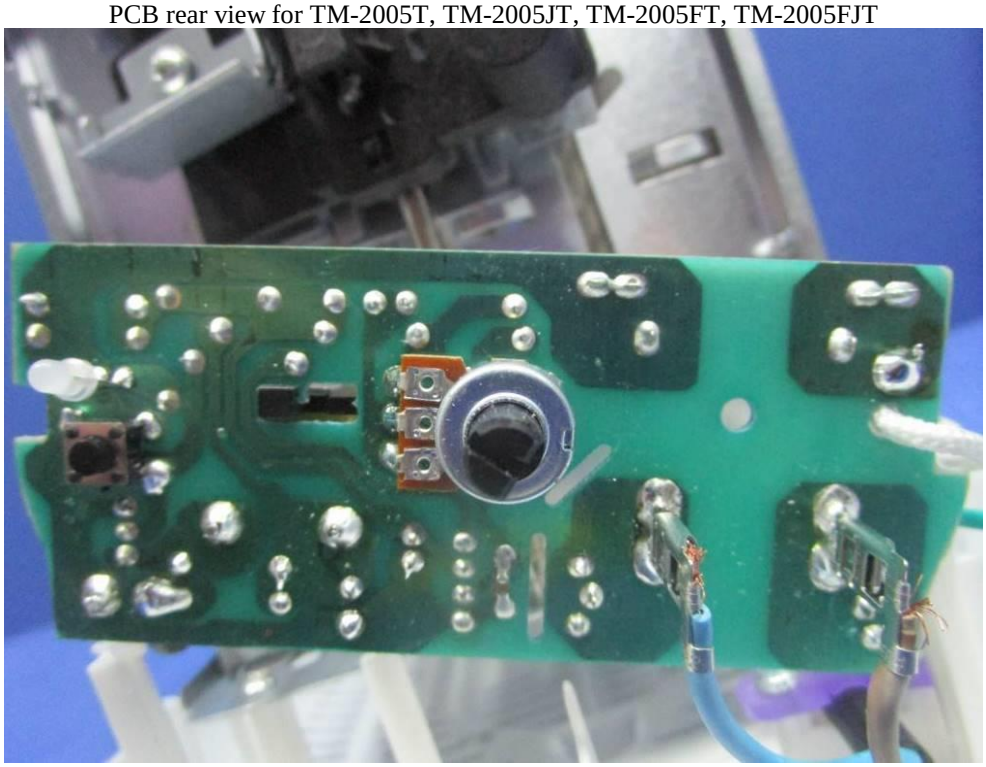


Photo 15.
Overall view for TM-2006 series

Photo 16.
Internal view for TM-2006, TM-2006J, TM-2006T, TM-2006JT

Photo 17.
Internal view for TM-2006F, TM-2006FJ, TM-2006FT, TM-2006FJT

Photo 18.
PCB 1 view of TM-2006, TM-2006J, TM-2006F, TM-2006FJ

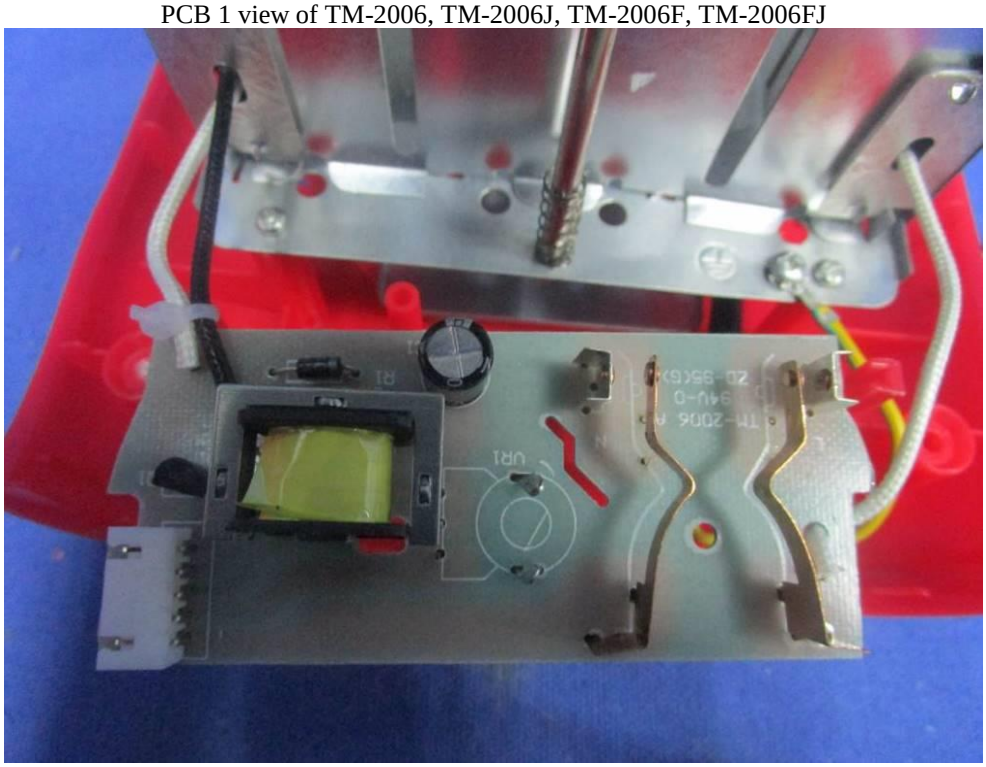


Photo 19.
PCB 1 rear view for TM-2006, TM-2006J, TM-2006F, TM-2006FJ

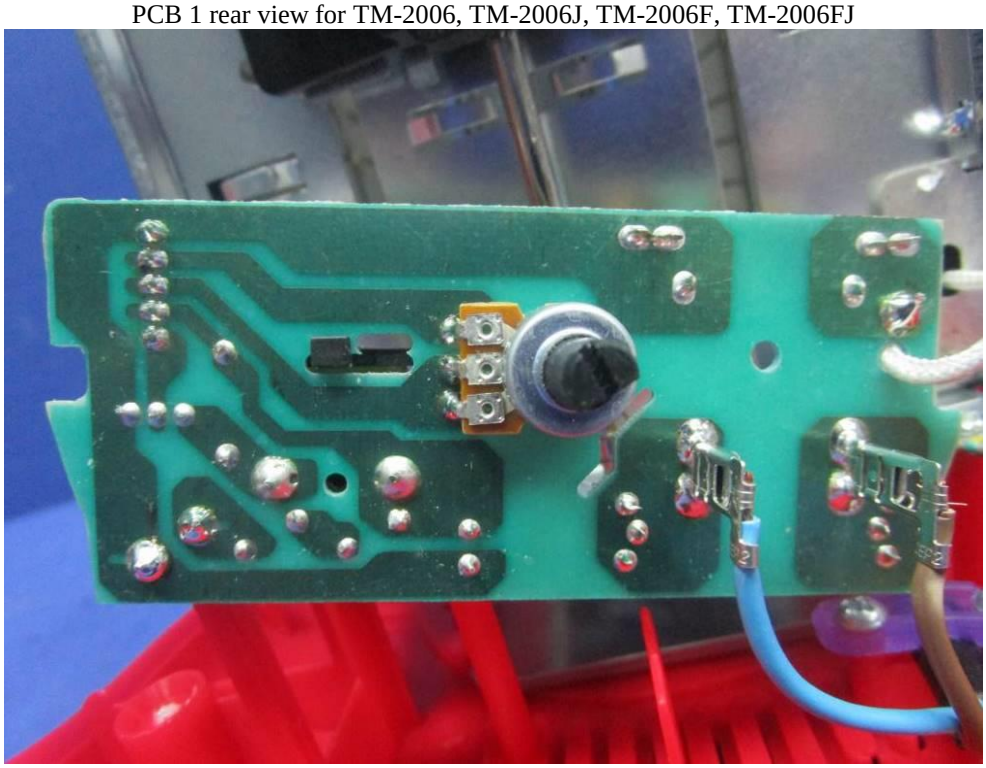


Photo 20.
PCB 2 view of TM-2006, TM-2006J, TM-2006F, TM-2006FJ

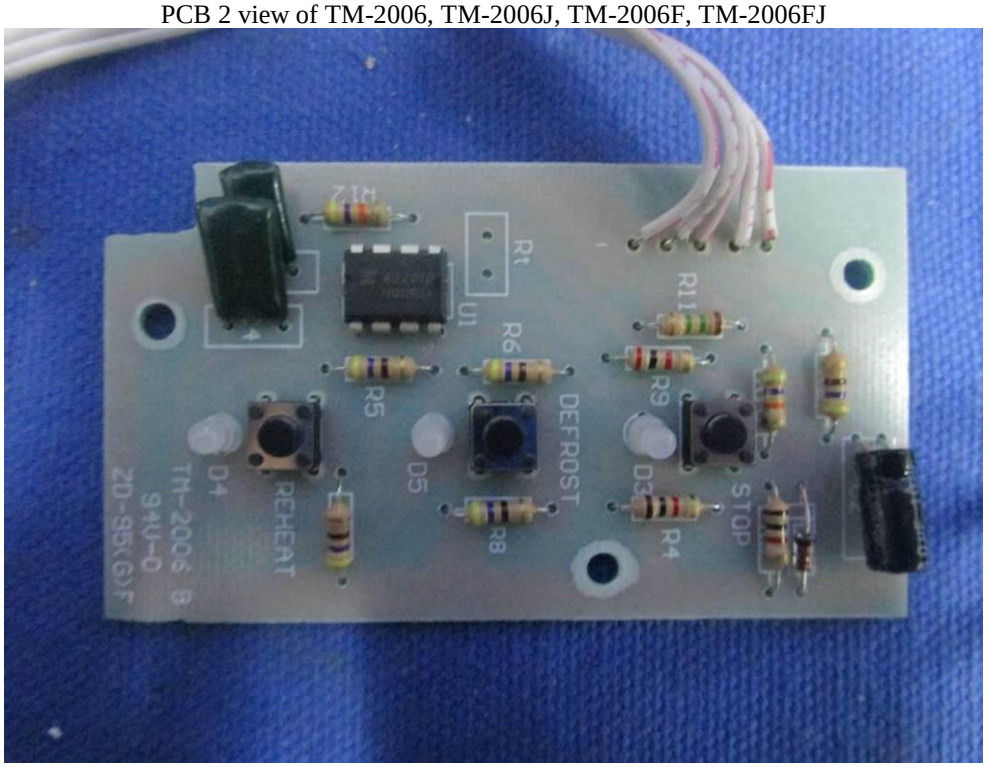


Photo 21.
PCB 2 rear view for TM-2006, TM-2006J, TM-2006F, TM-2006FJ

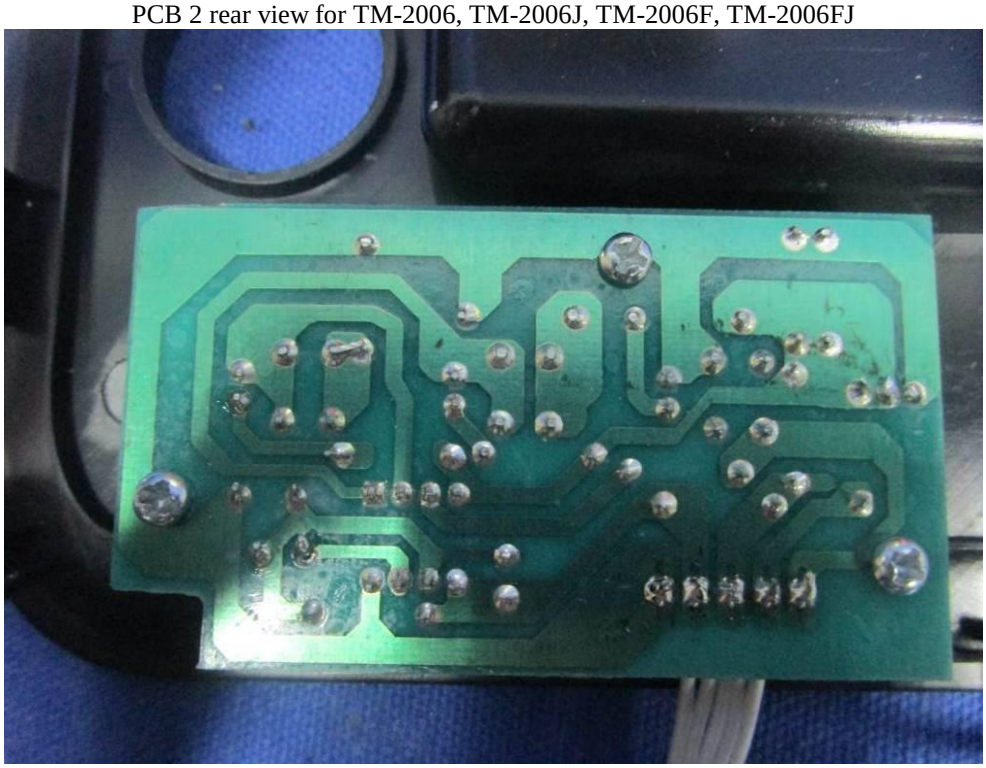


Photo 22.
PCB 1 view of TM-2006T, TM-2006JT, TM-2006FT, TM-2006FJT

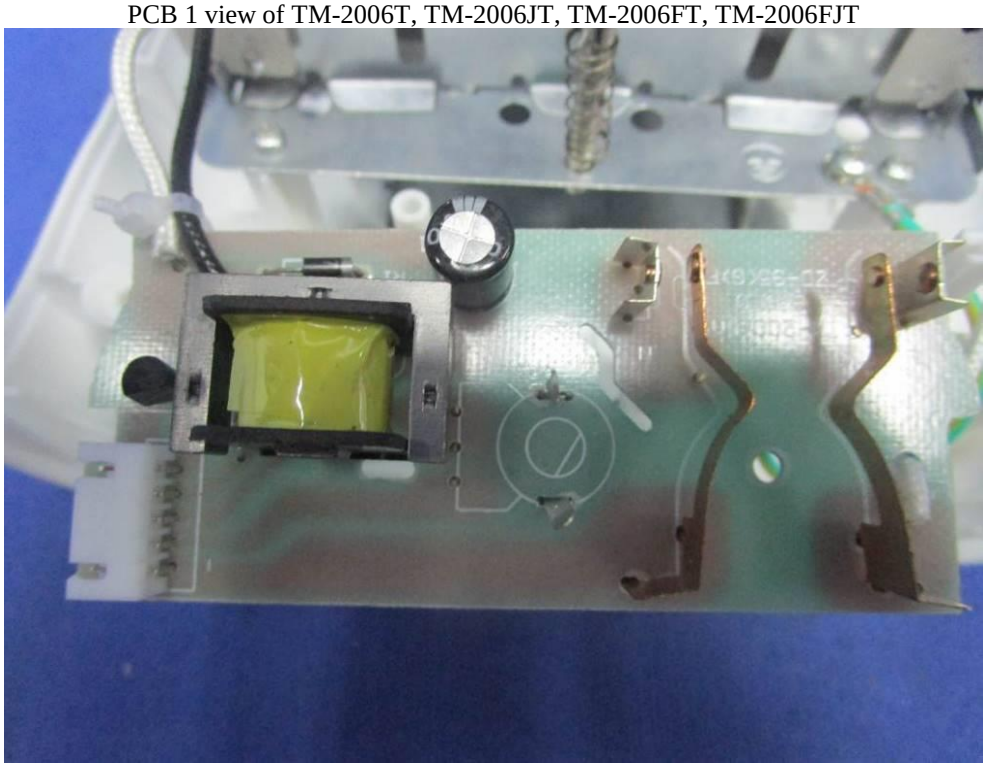


Photo 23.
PCB 1 rear view for TM-2006T, TM-2006JT, TM-2006FT, TM-2006FJT

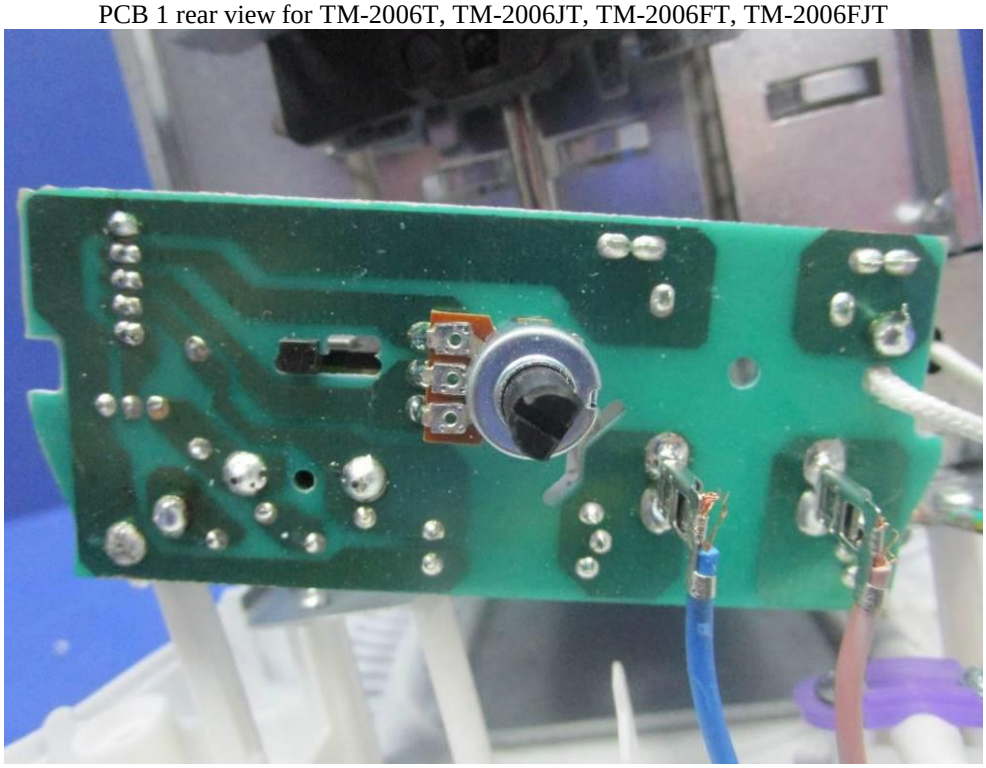


Photo 24.
PCB 2 view of TM-2006T, TM-2006JT, TM-2006FT, TM-2006FJT

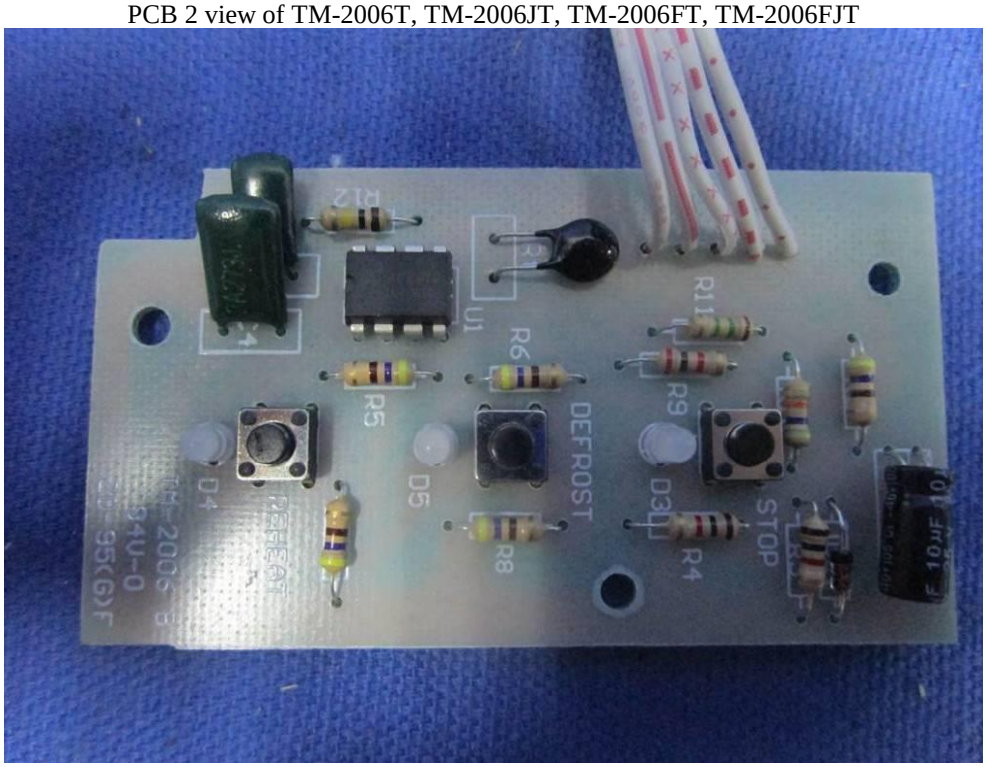


Photo 25.
PCB 2 rear view for TM-2006T, TM-2006JT, TM-2006FT, TM-2006FJT

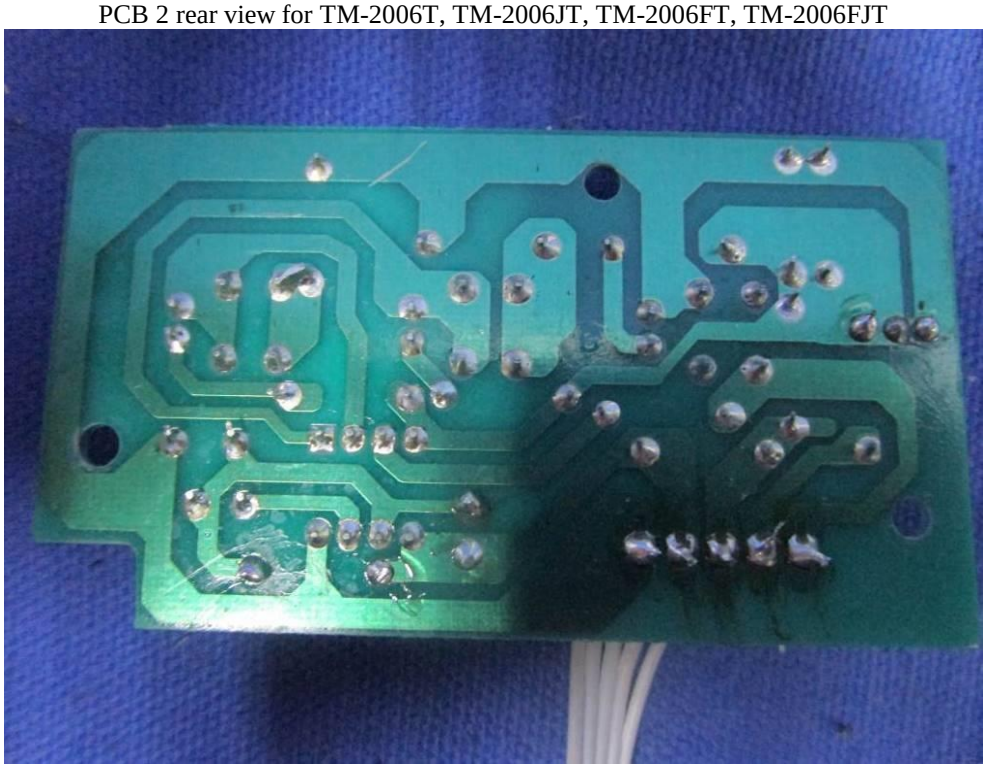


Photo 26.
Overall view for TM-2009F and TM-2009FJ

Photo 27.
Internal view for TM-2009F and TM-2009FJ

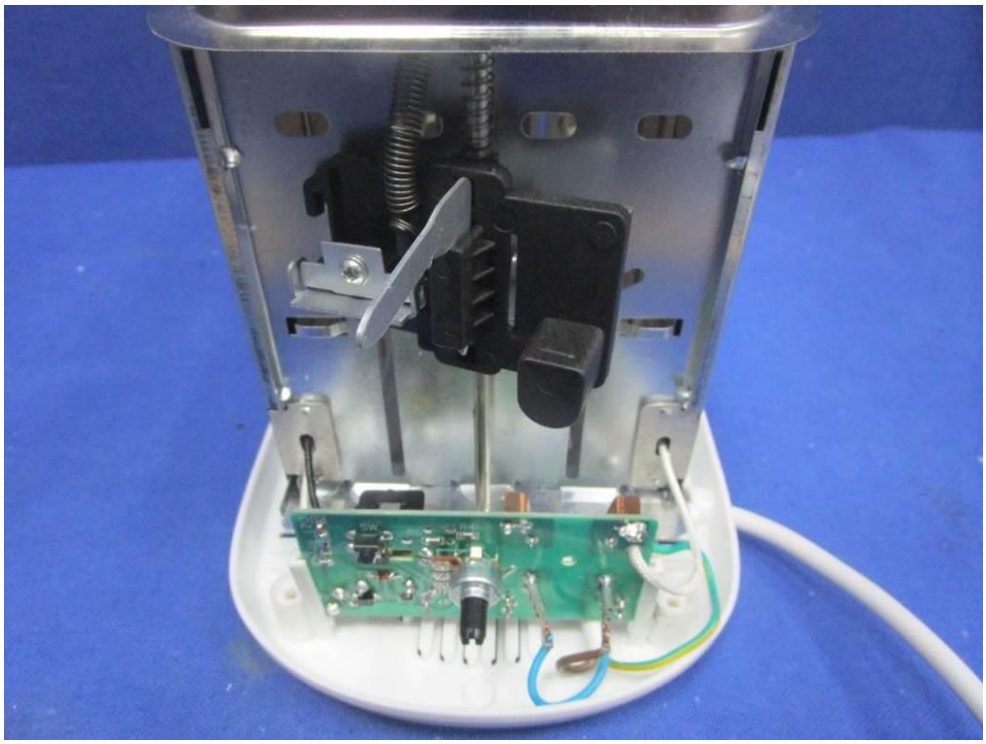


Photo 28.
PCB view of TM-2009F and TM-2009FJ

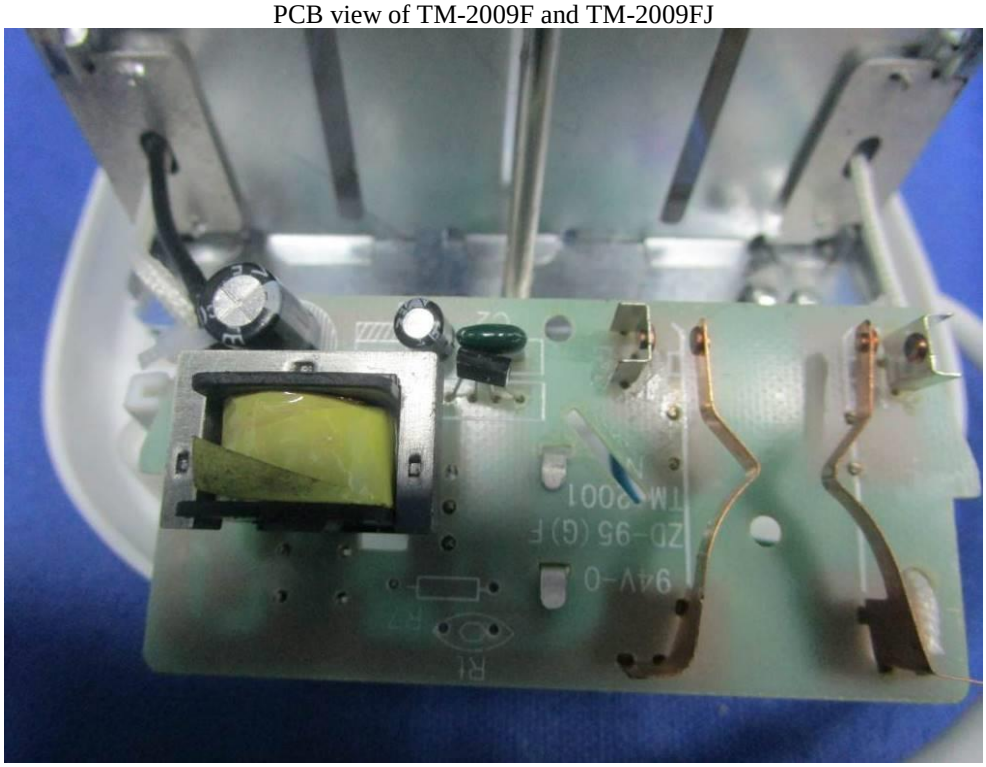


Photo 29.
PCB rear view for TM-2009F and TM-2009FJ

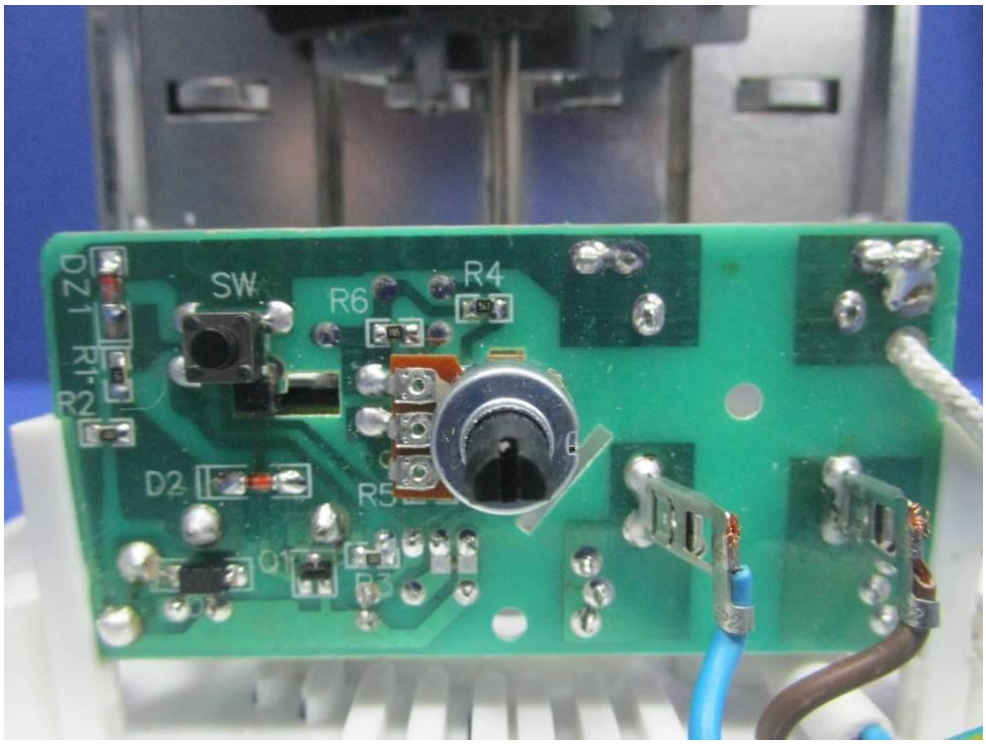


Photo 30.
Overall view for TM-2015T

Photo 31.
Top view for TM-2015T

Photo 32.
Internal view for TM-2015T

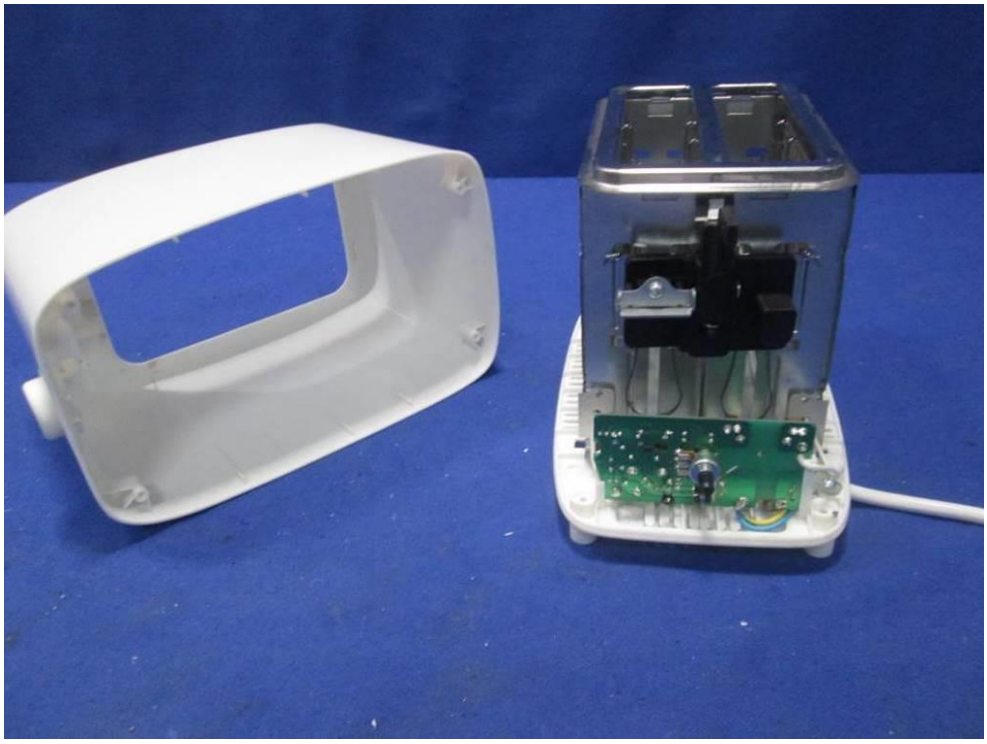


Photo 33.
PCB view of TM-2015T

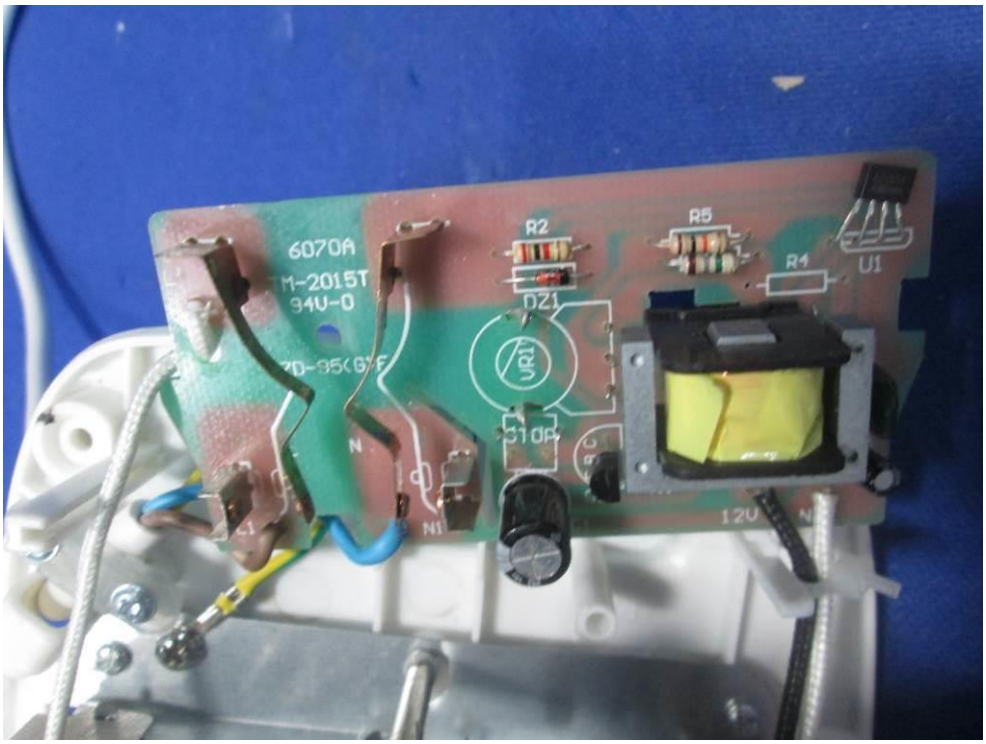


Photo 34.
PCB view of TM-2015T

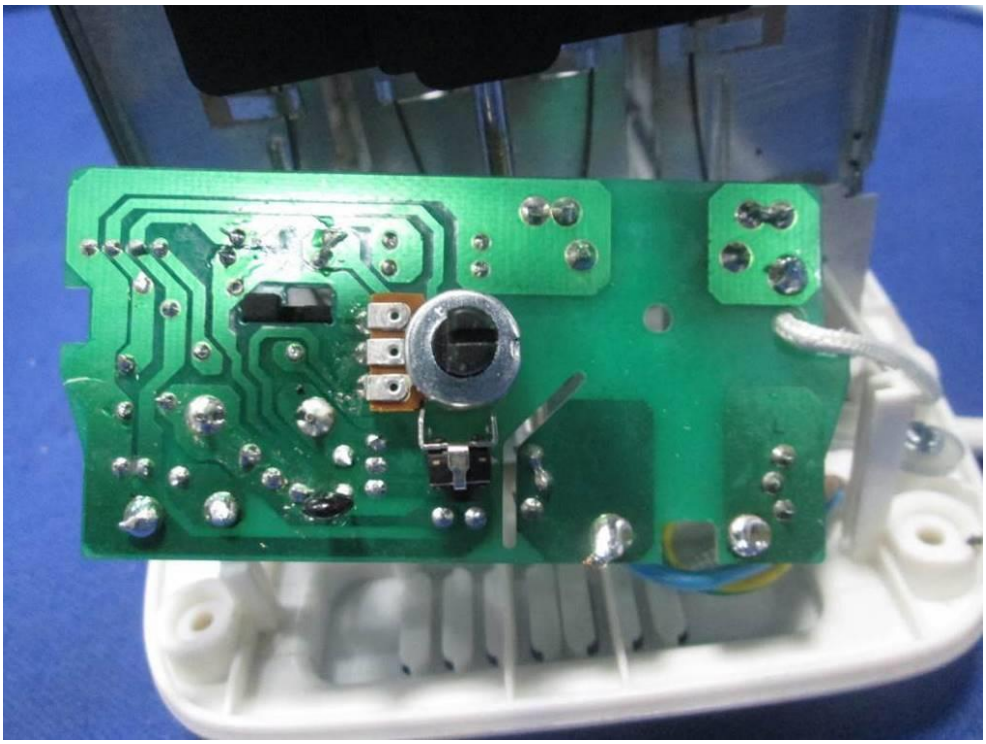


Photo 35.
Overall view for TM-2016T

Photo 36.
Top view for TM-2016T

Photo 37.
Internal view for TM-2016T

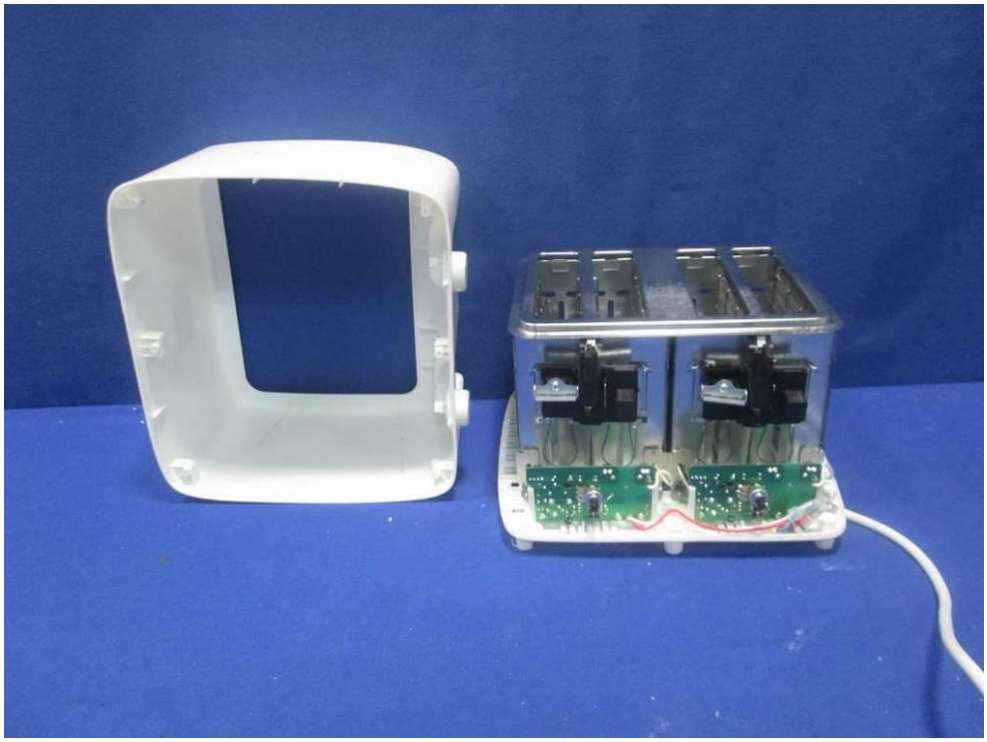


Photo 38.
PCB view for TM-2016T

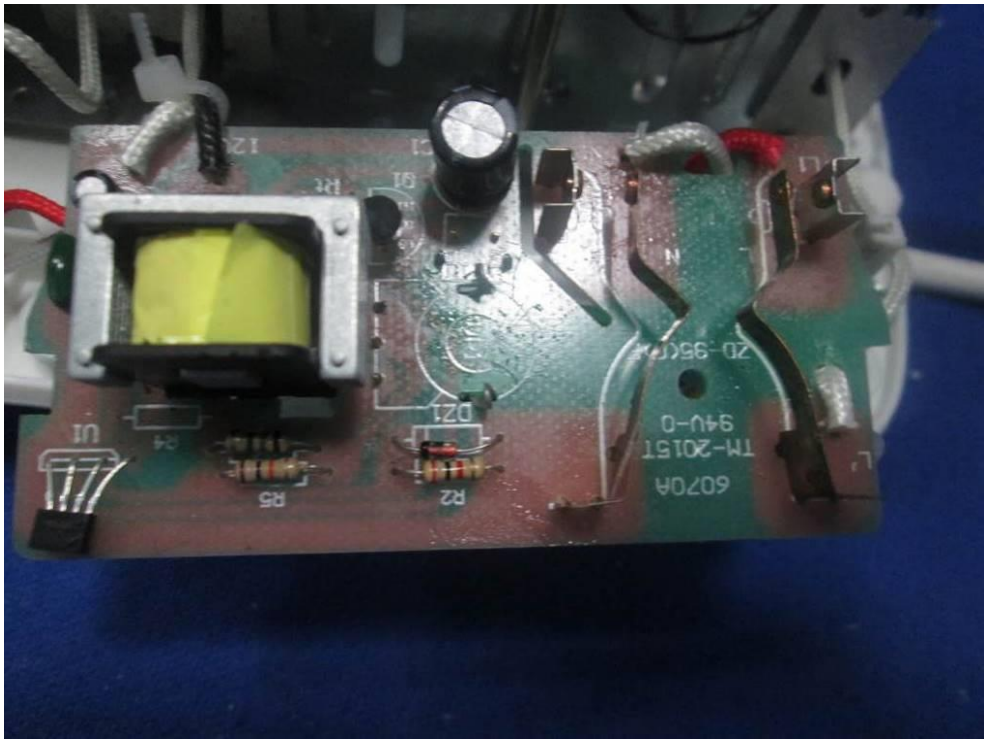
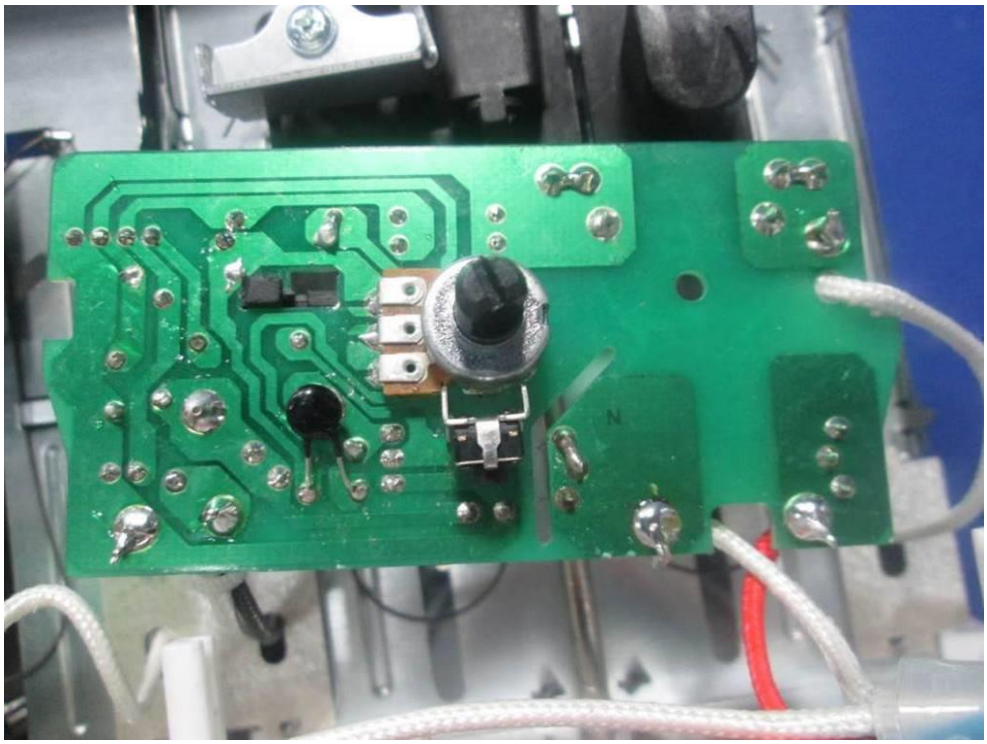


Photo 39.
PCB view for TM-2016T



Amendment 2 photo:
Photo 40.
Description: Overall view for TM-2019, TM-2019T, TM-2019TJ

Photo 41.
Description: Top view for TM-2019, TM-2019T, TM-2019TJ

Photo 42.
Description: Bottom view for TM-2019, TM-2019T, TM-2019TJ

Photo 43.
Description: Control knob of TM-2019, TM-2019T, TM-2019TJ

Photo 44.
Description: Internal view 1 for TM-2019, TM-2019T, TM-2019TJ

Photo 45.
Description: Internal view 2 for TM-2019, TM-2019T, TM-2019TJ

Photo 46.
Description: PCB view 1 of TM-2019, TM-2019T, TM-2019TJ

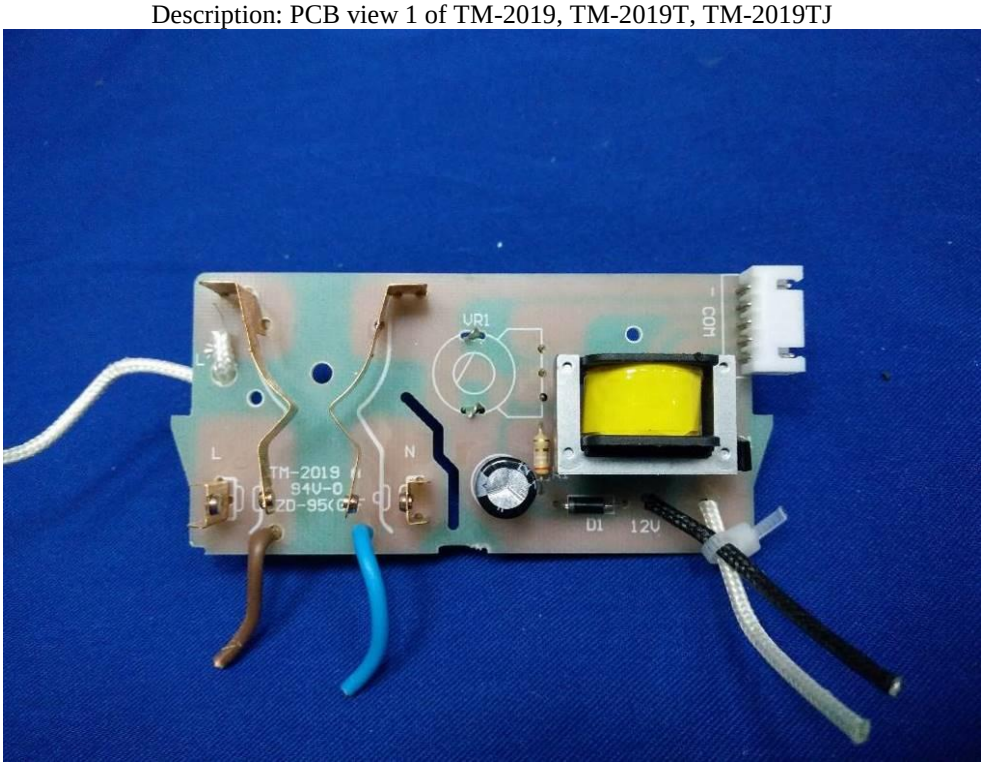


Photo 47.
Description: PCB view 2 of TM-2019, TM-2019T, TM-2019TJ

Photo 48.
Description: Control PCB view 1 of TM-2019

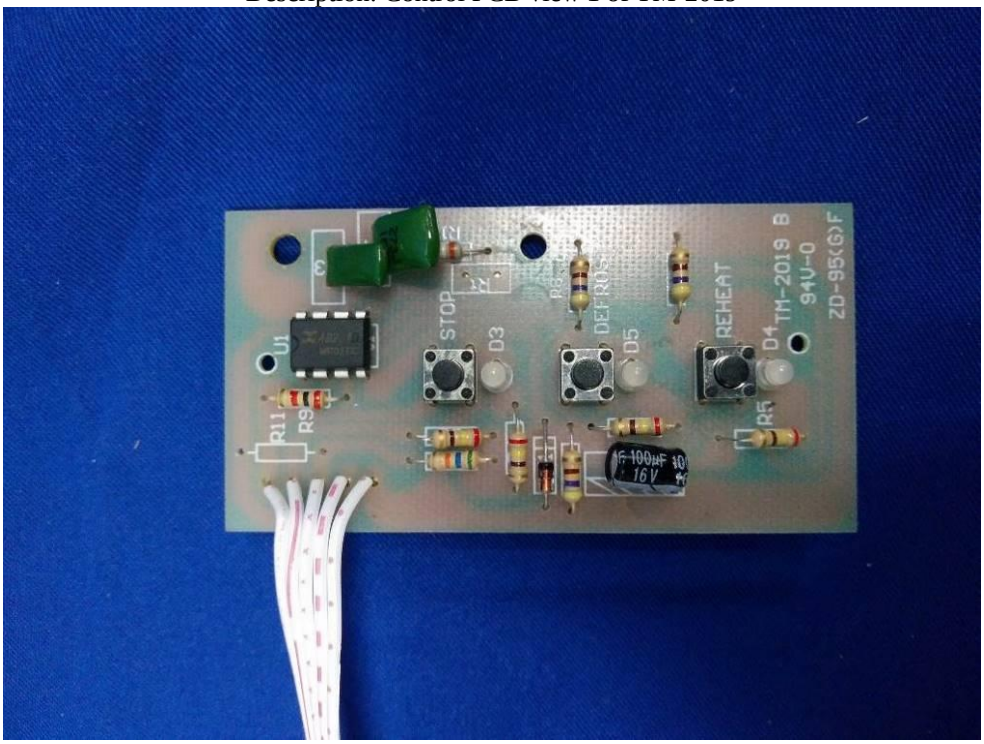


Photo 49.
Description: Control PCB view 2 of TM-2019

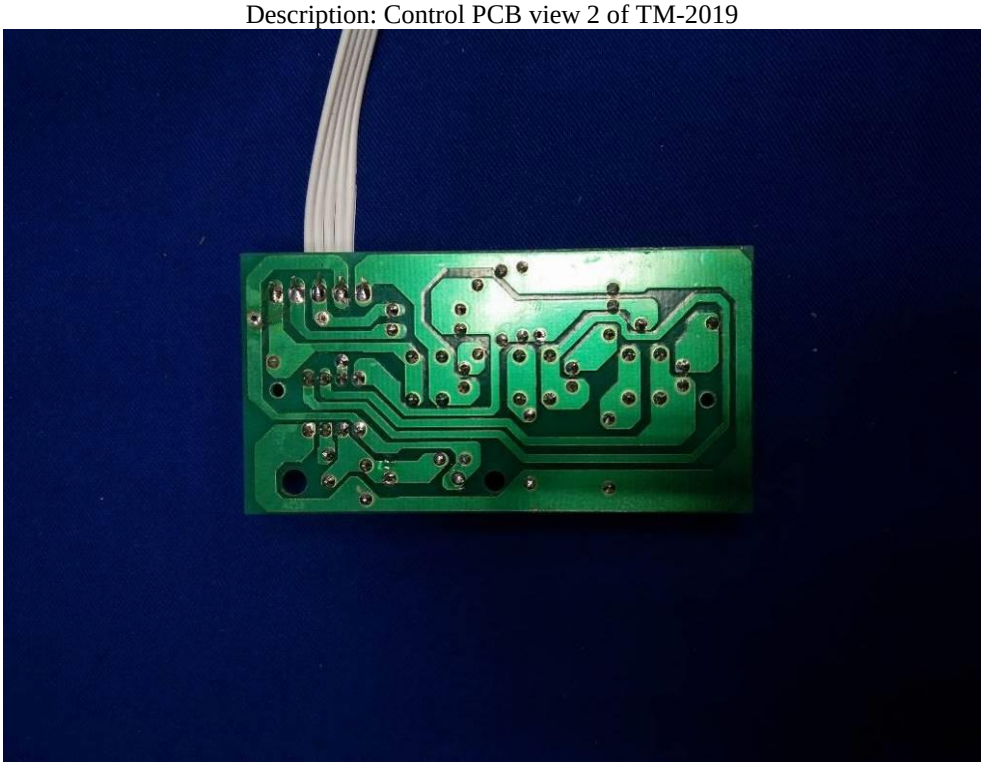


Photo 50.
Description: Control PCB view 3 of TM-2019T, 2019TJ

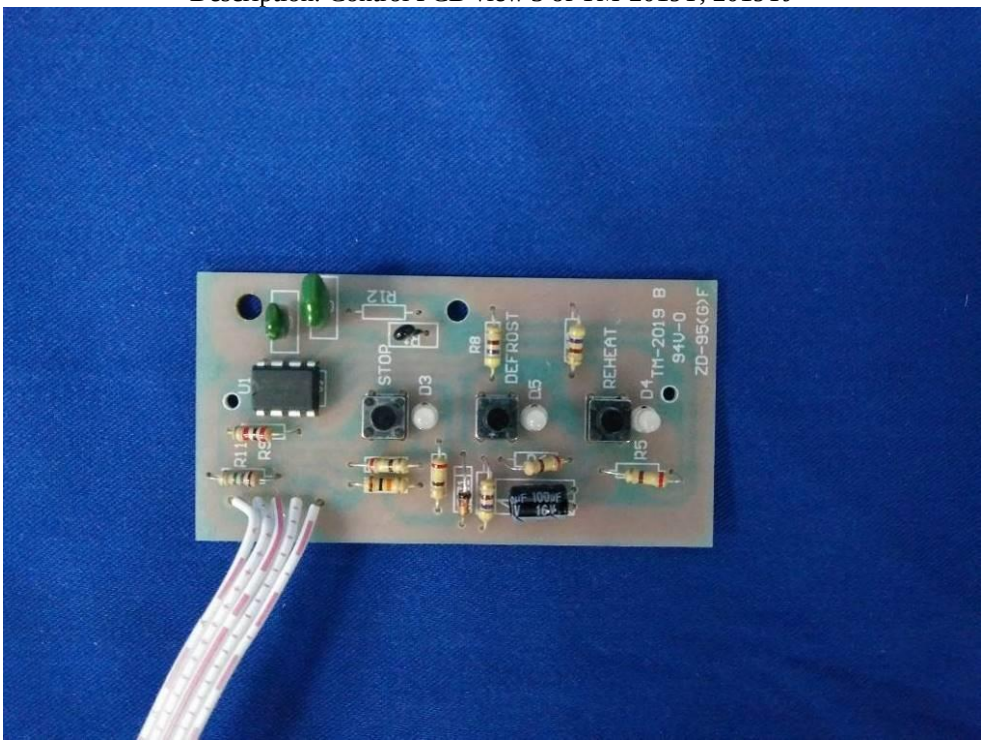


Photo 51.
Description: Control PCB view 4 of TM-2019T, 2019TJ

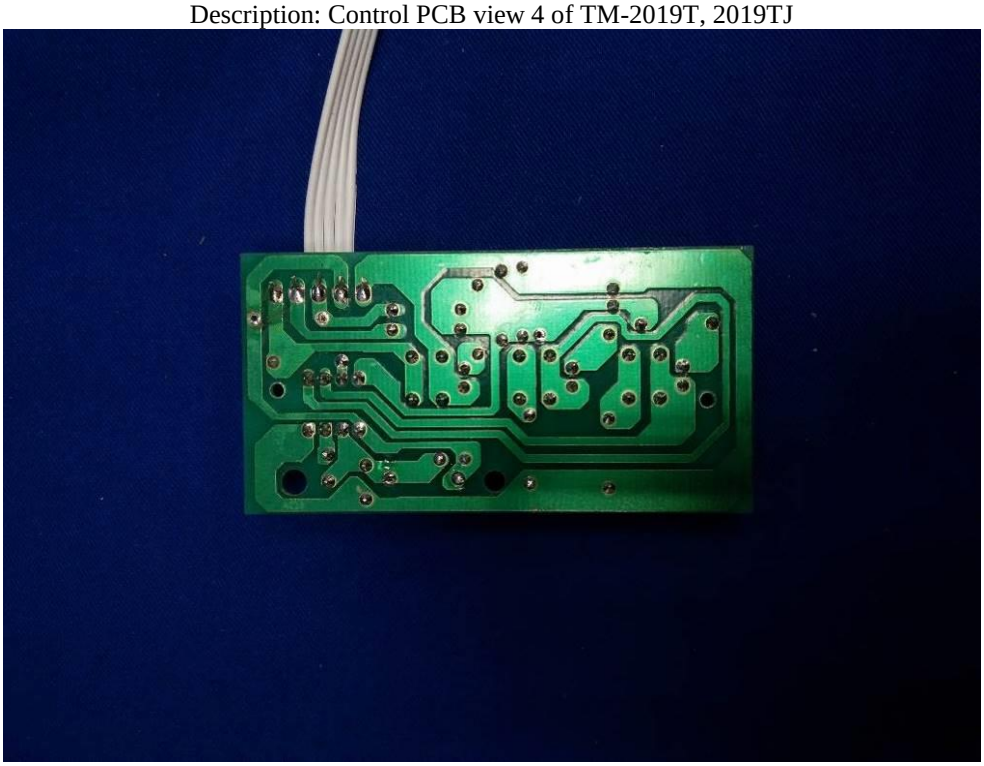


Photo 52.
Description: Overall view for TM-2020, TM-2020T, TM-2020TJ

Photo 53.
Description: Front view for TM-2020, TM-2020T, TM-2020TJ

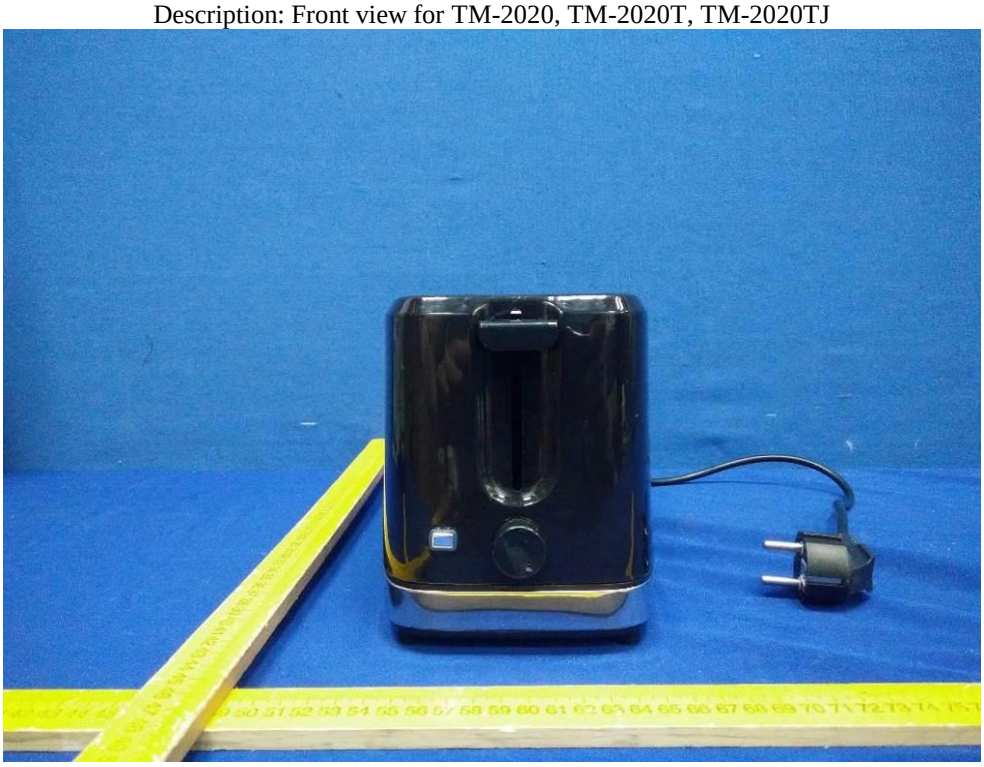


Photo 54.
Description: Top view for TM-2020, TM-2020T, TM-2020TJ

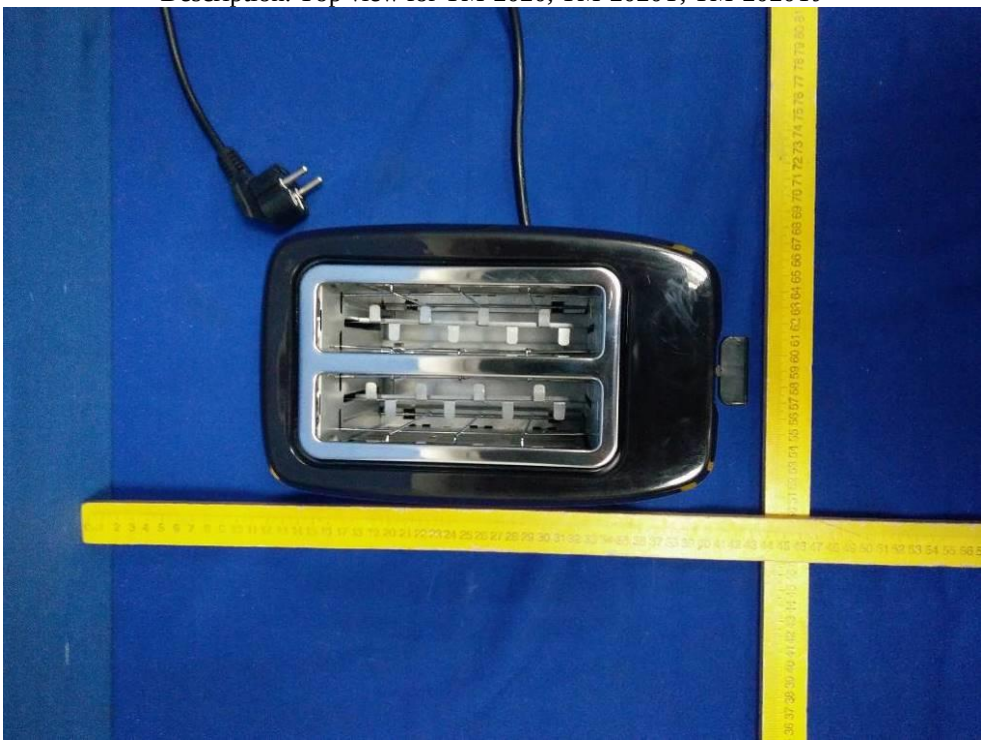


Photo 55.
Description: Bottom view for TM-2020, TM-2020T, TM-2020TJ

Photo 56.
Description: Control knob of TM-2020, TM-2020T, TM-2020TJ

Photo 57.
Description: Internal view 1 for TM-2020, TM-2020T, TM-2020TJ

Photo 58.
Description: Internal view 2 for TM-2020, TM-2020T, TM-2020TJ

Photo 59.
Description: Internal view 3 for TM-2020, TM-2020T, TM-2020TJ

Photo 60.
Description: PCB view 1 for TM-2020

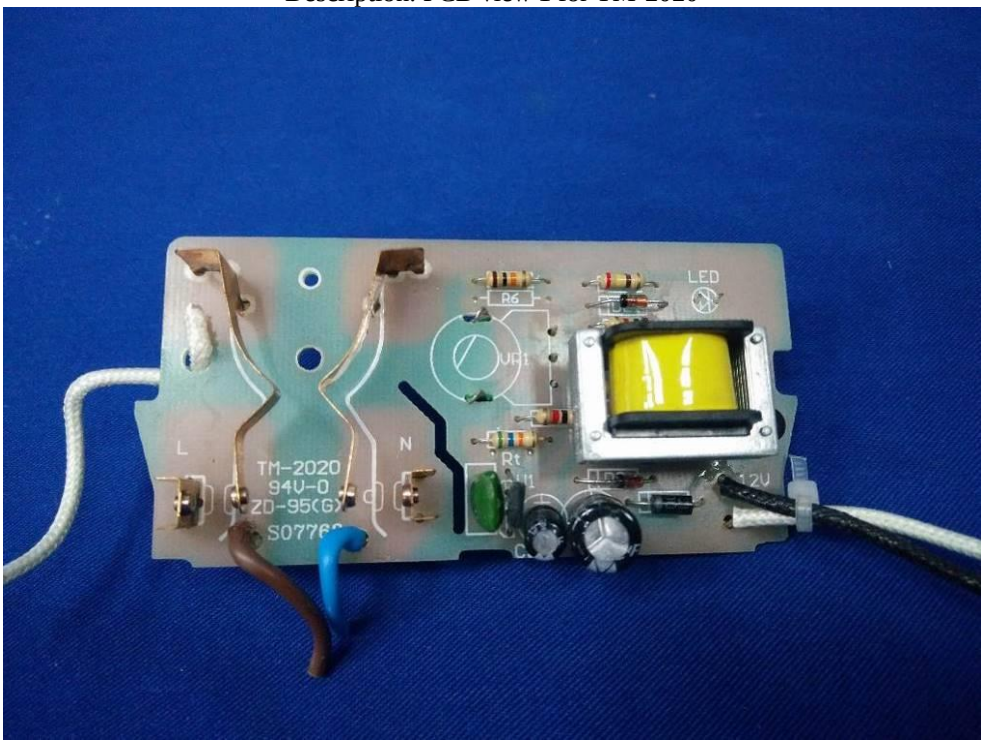
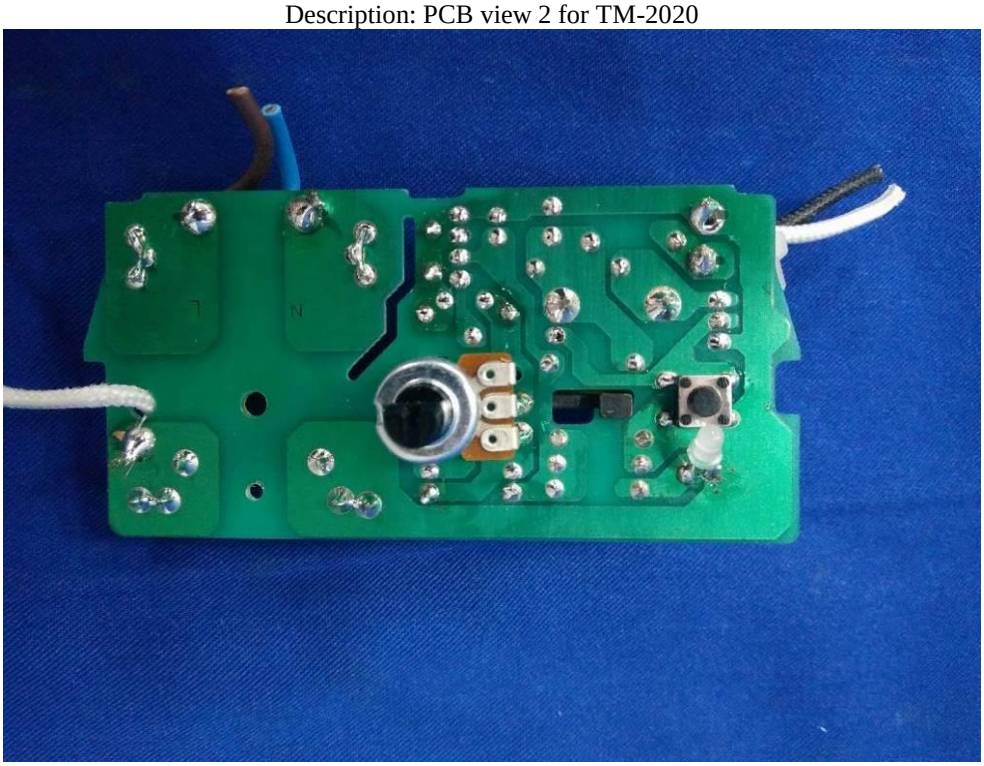


Photo 61.
Description: PCB view 2 for TM-2020



Amendment 3 photo：
Photo 62.
Description: PCB view 3 for TM-2020T, TM-2020TJ

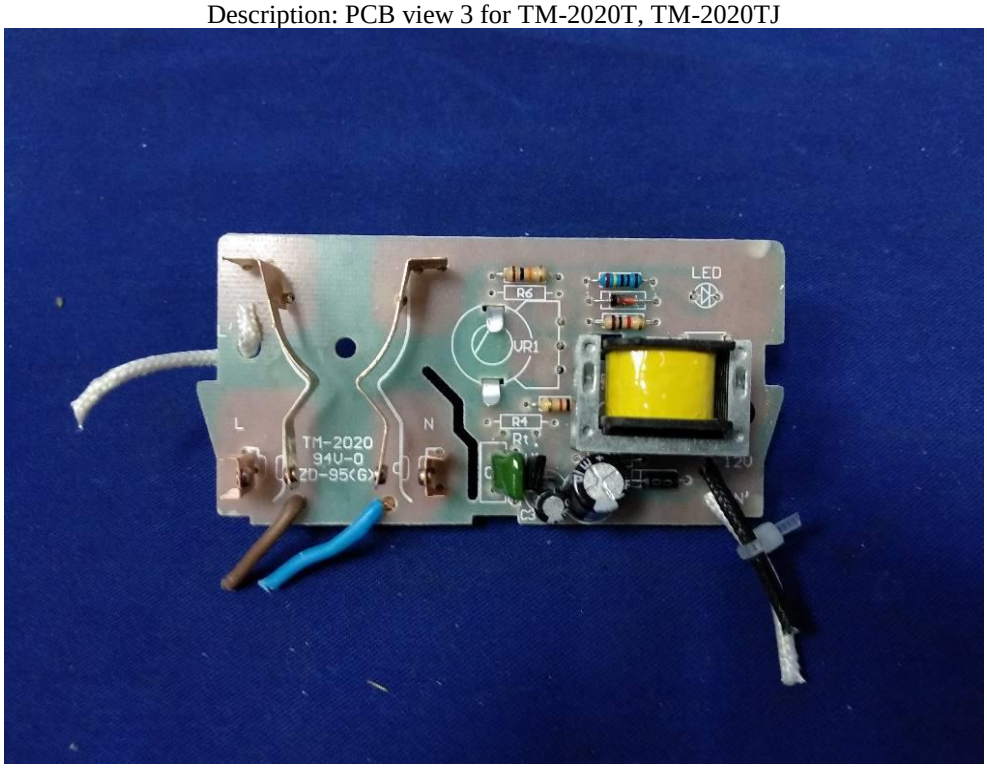
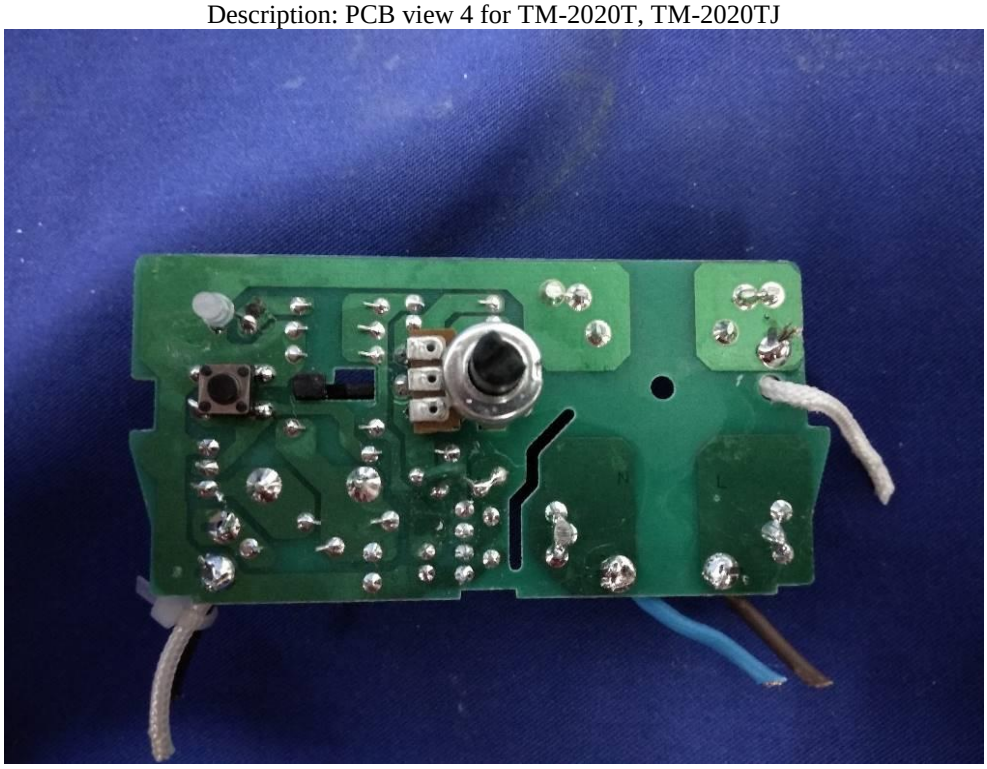


Photo 63.
Description: PCB view 4 for TM-2020T, TM-2020TJ



Amendment 4
Photo 1
Description: Overall view for TM-2017T

Photo 2
Description: Front view for TM-2017T

Photo 3
Description: Side view 1 for TM-2017T

Photo 4
Description: Side view 2 for TM-2017T

Photo 5
Description: Rear view for TM-2017T

Photo 6
Description: Top view for TM-2017T

Photo 7
Description: Bottom view for TM-2017T

Photo 8
Description: Control knob of TM-2017T

Photo 9
Description: Overall view for TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 10
Description: Front view for TM-2011, TM-2011P, TM-2011J, TM-2011F

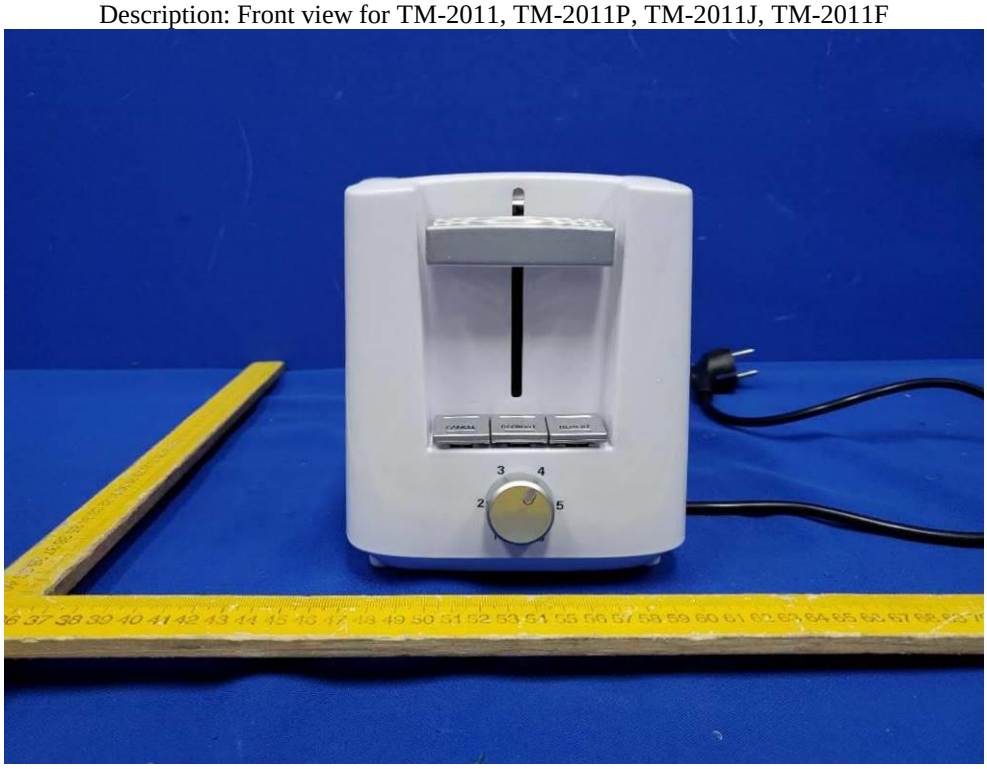


Photo 11
Description: Side view 1 for TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 12
Description: Side view 2 for TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 13
Description: Rear view for TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 14
Description: Top view for TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 15
Description: Bottom view for TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 16
Description: Control knob of TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 17
Description: Internal view 1 for TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 18
Description: Internal view 2 for TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 19
Description: Earthing view for TM-2011, TM-2011P, TM-2011J, TM-2011F

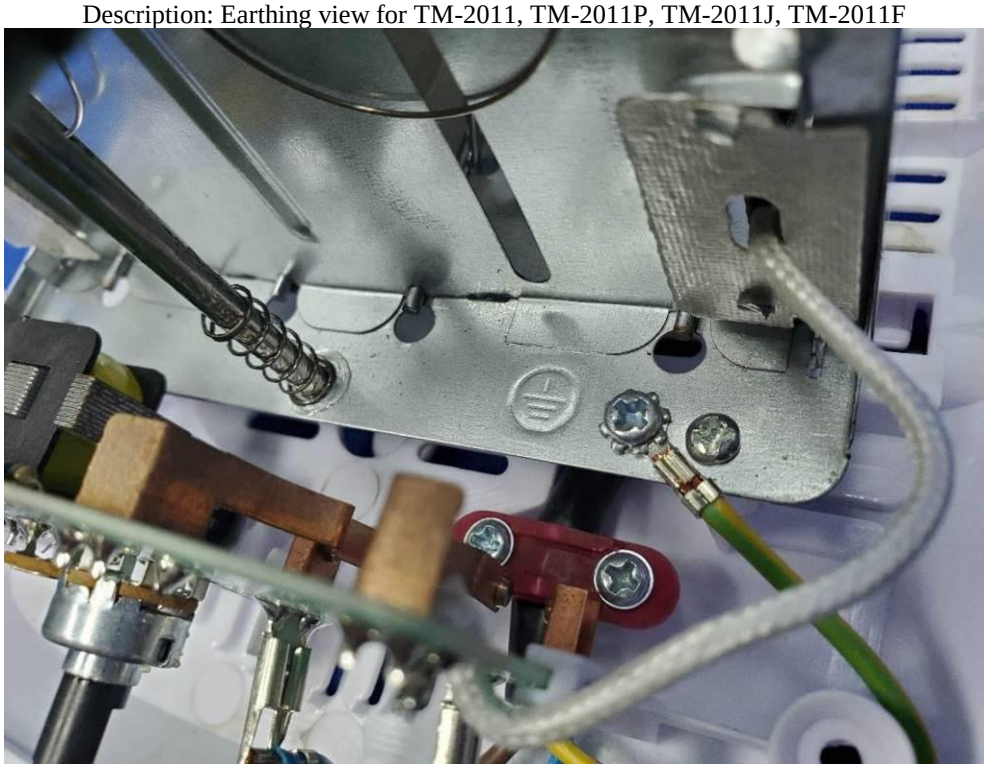


Photo 20
Description: PCB1 view 1 for TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 21
Description: PCB1 view 2 for TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 22
Description: PCB2 view 2 for TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 23
Description: PCB2 view 2 for TM-2011, TM-2011P, TM-2011J, TM-2011F

Photo 24
Description: Front view for TM-2010, TM-2010P, TM-2010J, TM-2010F

Photo 25
Description: Side view 1 for TM-2010, TM-2010P, TM-2010J, TM-2010F

Photo 26
Description: Side view 2 for TM-2010, TM-2010P, TM-2010J, TM-2010F

Photo 27
Description: Rear view for TM-2010, TM-2010P, TM-2010J, TM-2010F

Photo 28
Description: Top view for TM-2010, TM-2010P, TM-2010J, TM-2010F

Photo 29
Description: Bottom view for TM-2010, TM-2010P, TM-2010J, TM-2010F

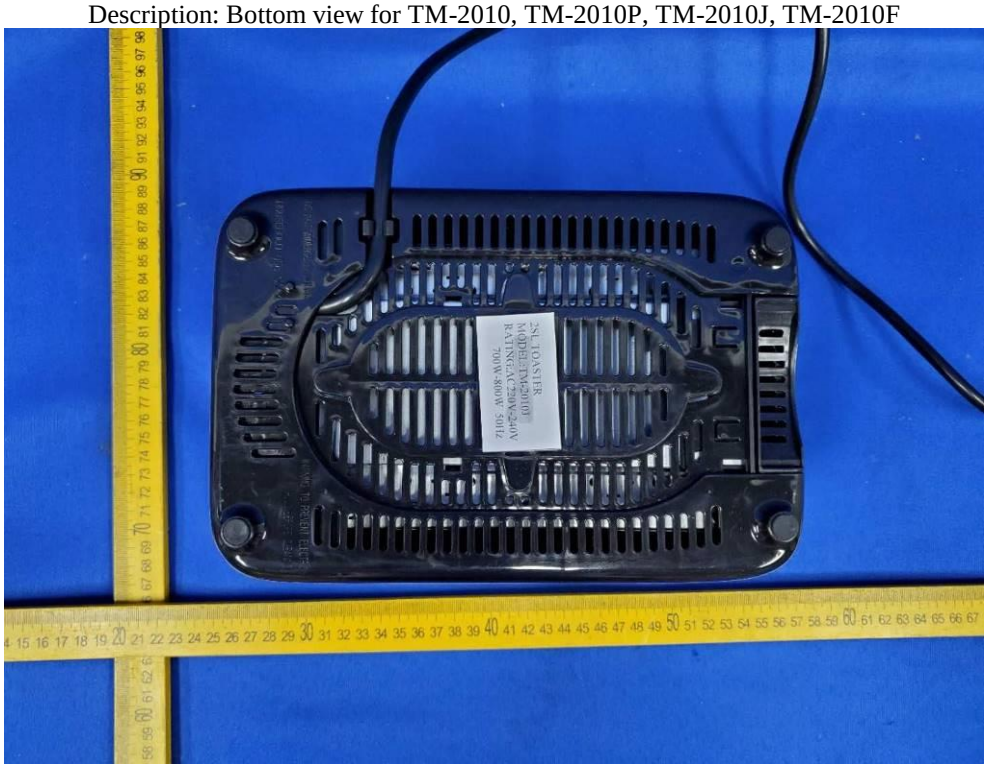


Photo 30
Description: Control knob of TM-2010, TM-2010P, TM-2010J, TM-2010F

Photo 31
Description: Internal view 1 for TM-2010, TM-2010P, TM-2010J, TM-2010F

Photo 32
Description: Internal view 2 for TM-2010, TM-2010P, TM-2010J, TM-2010F

Photo 33
Description: Earthing view for TM-2010, TM-2010P, TM-2010J, TM-2010F

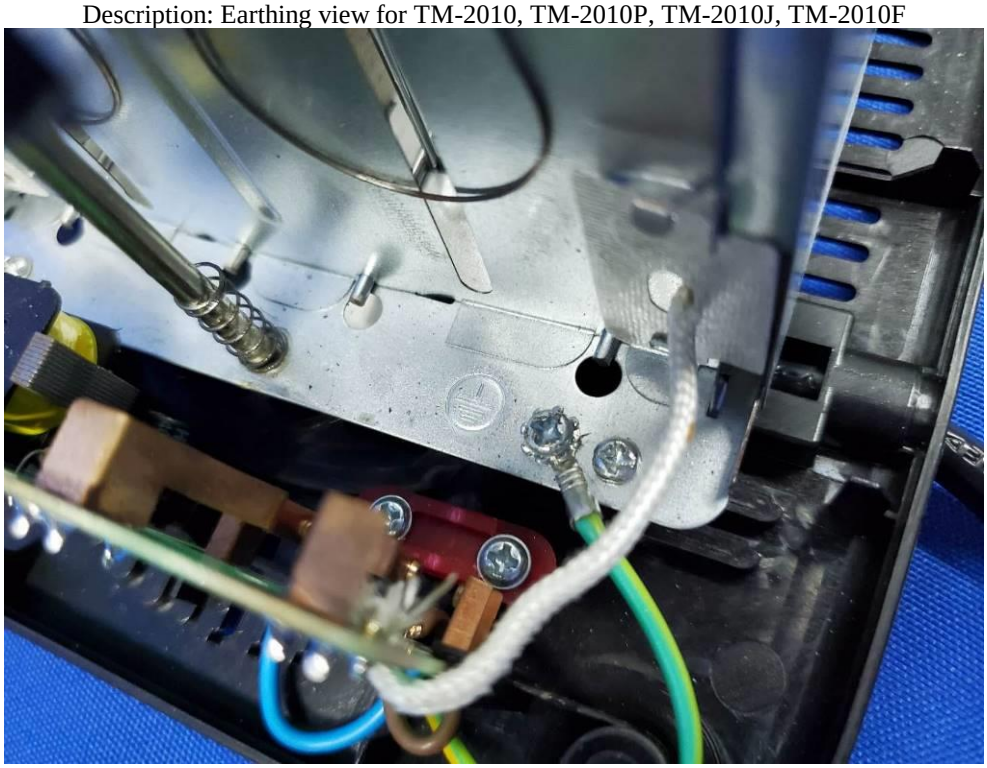


Photo 34
Description: PCB1 view 1 for TM-2010, TM-2010P, TM-2010J, TM-2010F

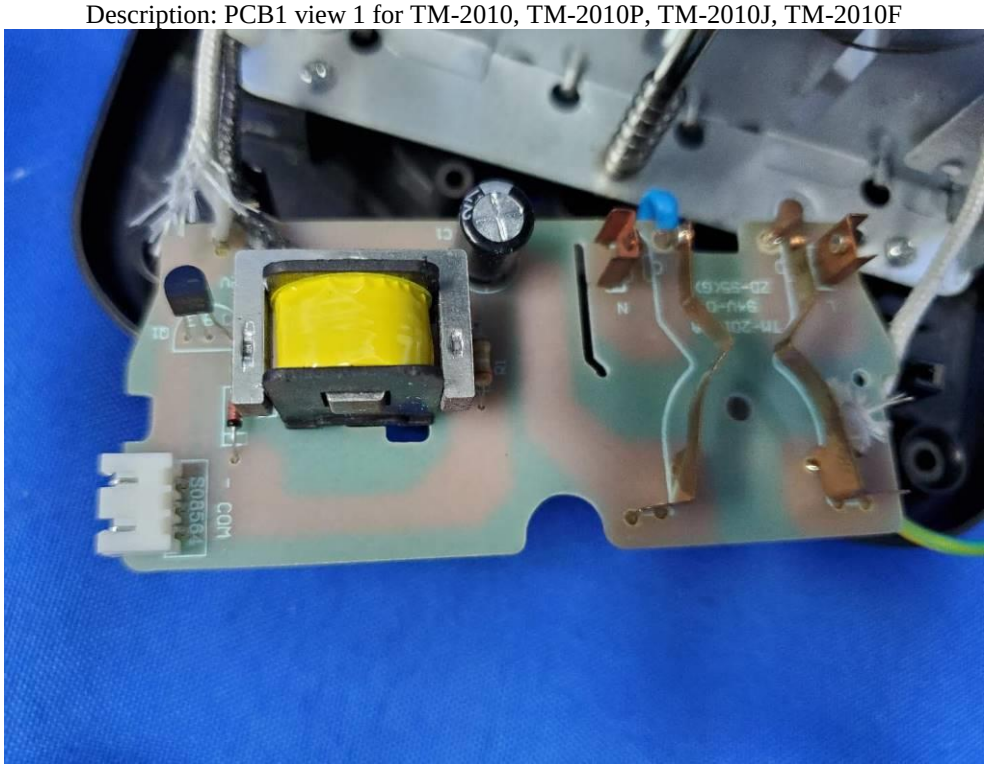


Photo 35
Description: PCB1 view 2 for TM-2010, TM-2010P, TM-2010J, TM-2010F

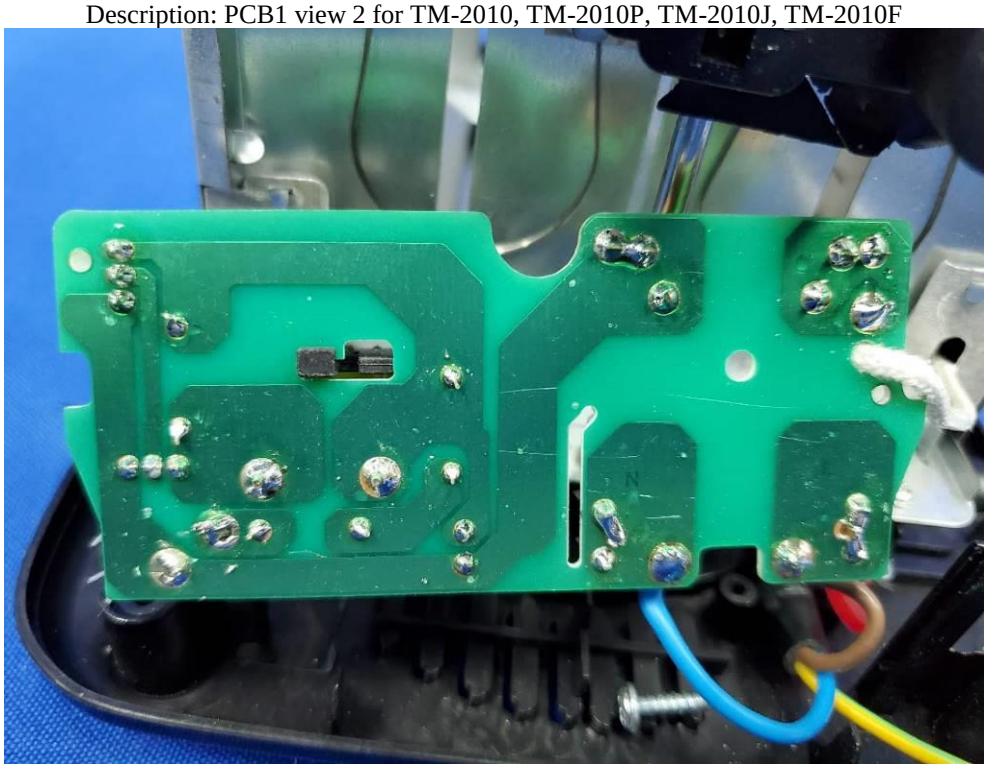


Photo 36
Description: PCB2 view 2 for TM-2010, TM-2010P, TM-2010J, TM-2010F

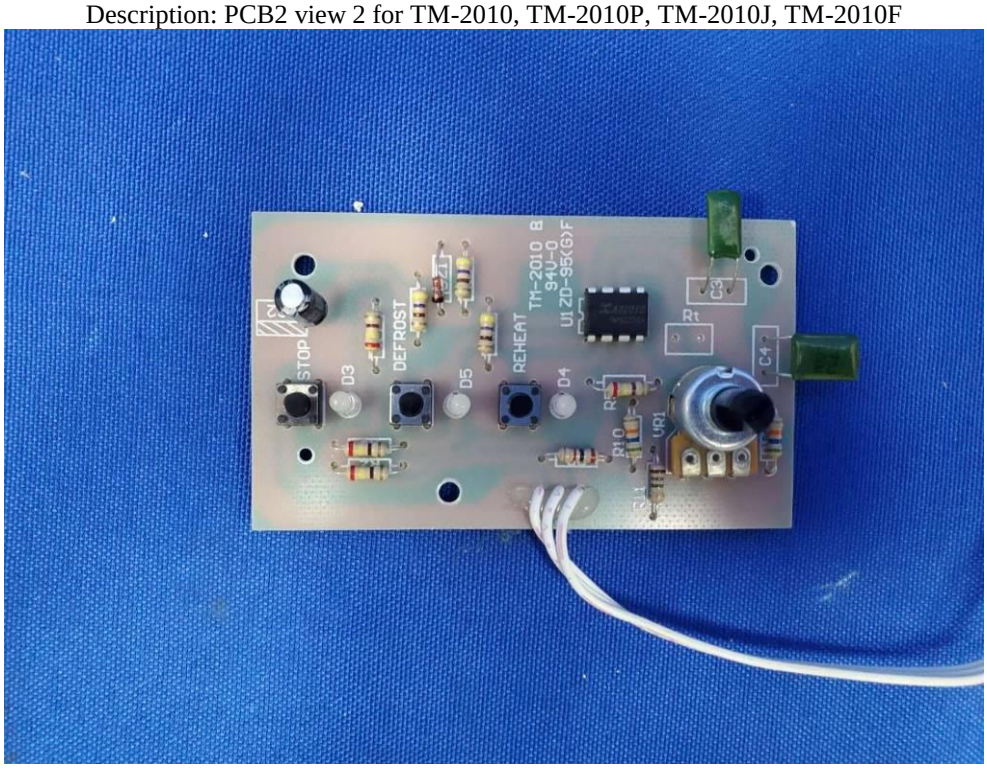


Photo 37
Description: PCB2 view 2 for TM-2010, TM-2010P, TM-2010J, TM-2010F

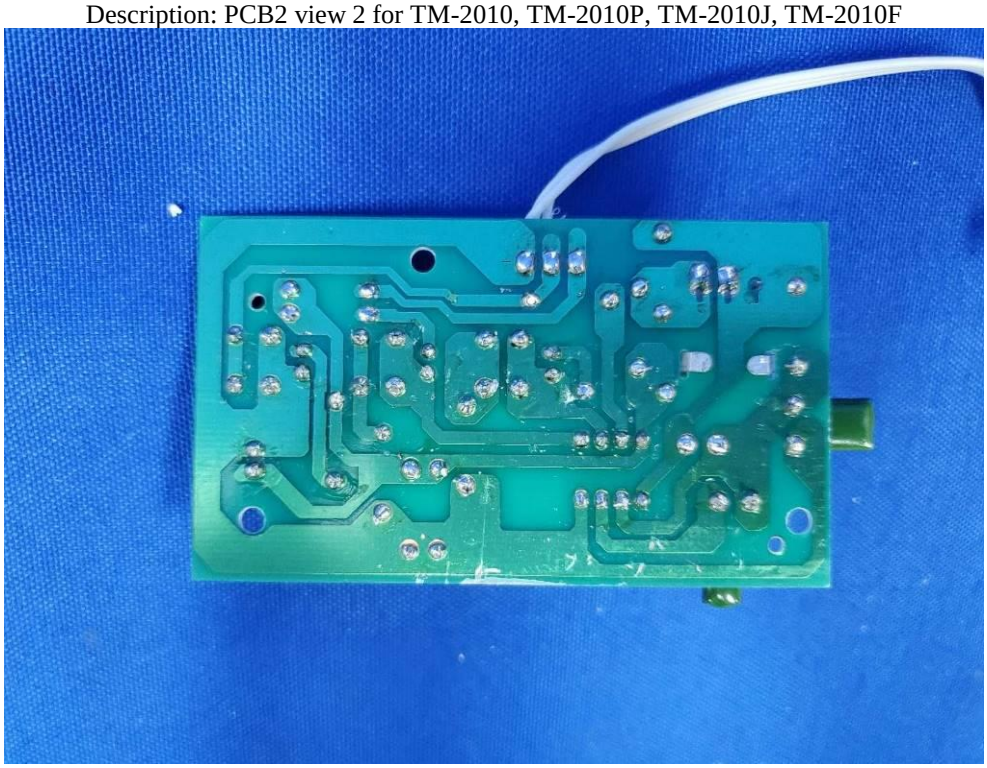


Photo 38
Description: Bread supporter view for TM-2011J, TM-2010J, TM-2006MJ

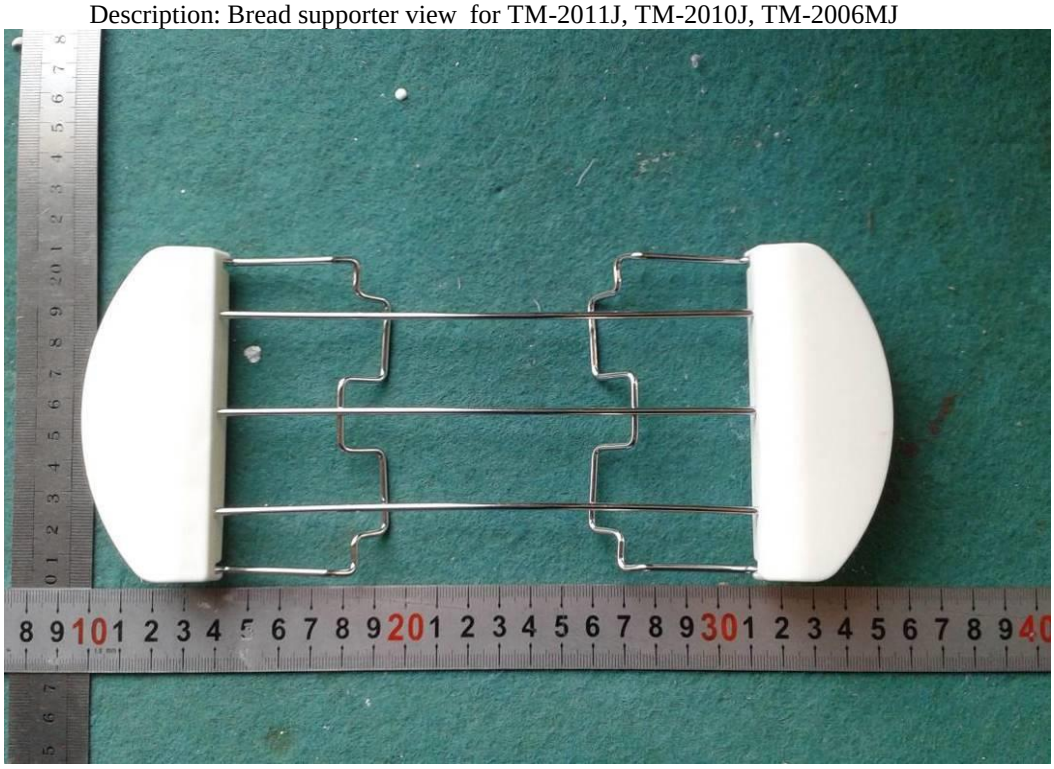
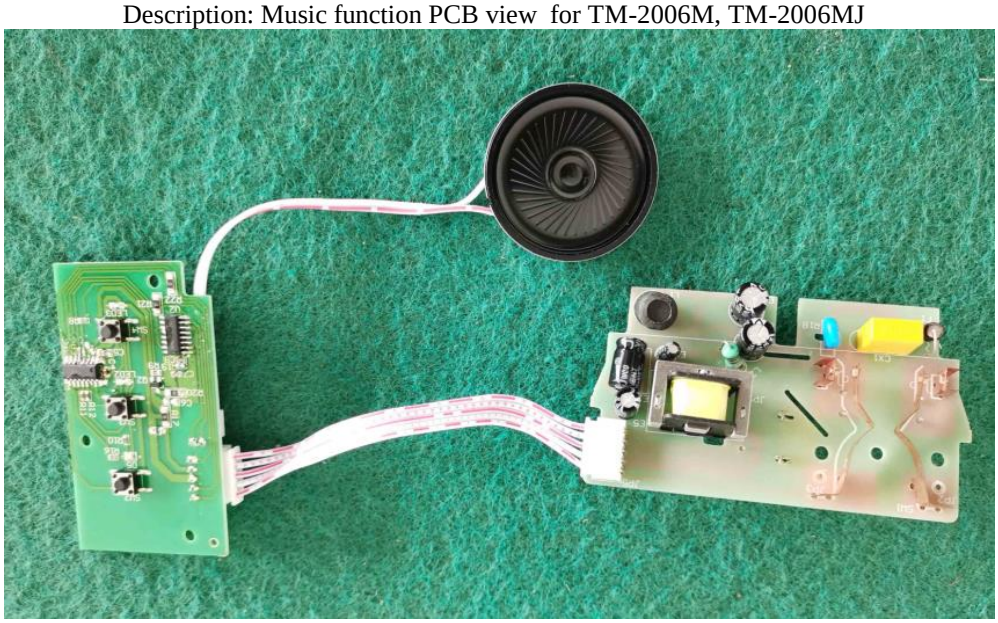


Photo 39
Description: Movable type with picture view for TM-2011P, TM-2010P, TM-2006P

Photo 40
Description: Music function PCB view for TM-2006M, TM-2006MJ



Amendment 5 photos
Description: bread supportor for TM-2019J, TM-2020J, TM-2019BJ and TM-2020BJ.

Description: bottom enclosure for TM-2019B, TM-2020B, TM-2019BJ and TM-2020BJ.

8 Amendment 1

The test report ref. No. EFSH15030095-IE-01-E01 dated 2015-03-23 was modified on 2016-09-14 to include the following changes and/or additions:
1. Two new models: TM-2015T and TM-2016T were added.
2. Compared with original model, TM-2015T and TM-2001T share similar construction except appearance and PCB with other models.
3. TM-2016T has different construction, appearance and PCB.

After review, TM-2015T and TM-2016T were subjected to the tests and the most unfavourable data was recorded.

This report replaces the original test report: EFSH15030095-IE-01-E01.

9 Amendment 2

The test report ref. No. EFSH15030095-IE-01-E01 dated 2015-03-23 and EFSH15030095-IE-01-E01-A1 dated 2016-09-14 were modified on 2017-08-31 to include the following changes and/or additions:
1. Six new models: TM-2019, TM-2019T, TM-2019TJ, TM-2020, TM-2020T and TM-2020TJ were added. The detail differences are as below:

Model	Type of Resistance	With/without bread supportor
TM-2019	Mechanical temperature sensing resistor	Without bread supportor
TM-2019T	Thermistor	Without bread supportor
TM-2019TJ		With bread supportor
TM-2020	Mechanical temperature sensing resistor	Without bread supportor
TM-2020T	Thermistor	Without bread supportor
TM-2020TJ		With bread supportor

2. Compared with original model, TM-2019 series and TM-2006 series share similar construction except appearance and PCB with other models. TM-2020 series and TM-2005 series share similar construction except appearance and PCB with other models.
3. Add technical standard “EN 55014-2:2015”.

After review, TM-2019 and TM-2020T were tested and recorded.

Test report ref. No. EFSH15030095-IE-01-E01-A1 was replaced by this test report ref. No. EFSH15030095-IE-01-E01-A2.

10 Amendment 3

The test report ref. No. EFSH15030095-IE-01-E01 dated 2015-03-23, EFSH15030095-IE-01-E01-A1 dated 2016-09-14 and EFSH15030095-IE-01-E01-A2 dated 2017-08-31 were modified on 2017-12-15 to include the following changes and/or additions:
The value of resistance on PCB for TM-2020T and TM-2020TJ was changed. Detail refers to EUT photo 62 - 63.

After review, no additional test needs to be performed.

Test report ref. No. EFSH15030095-IE-01-E01-A2 was replaced by this test report ref. No. EFSH15030095-IE-01-E01-A3.

11 Amendment 4

The test report Ref. No. EFSH15030095-IE-01-E01-A3 dated 2017-12-15 was modified on 2020-08-25 to include the following changes and/or additions:
1. Update technical standard to “EN 55014-1: 2017”.
2. Remove technical standard “EN 55014-2: 1997+A1: 2001+A2: 2008”.
3. Update technical standard to “EN IEC 61000-3-2: 2019”.
4. Update technical standard to “EN 61000-3-3: 2013+A1: 2019”.
5. Add new models: TM-2010, TM-2010P, TM-2010J, TM-2010F, TM-2011, TM-2011P, TM-2011J, TM-2011F, TM-2006M, TM-2006MJ, TM-2006P, TM-2017T

Similarity:

Model	Appearance	Rated power input	Type of shelf
TM-2010	TM-2010	700-800W	Movable type
TM-2010P	TM-2010	700-800W	Movable type with picture
TM-2010J	TM-2010+ bread supporter	700-800W	Movable type
TM-2010F	TM-2010	700-800W	Fixed type

Model	Appearance	Rated power input	Type of shelf
TM-2011	TM-2011	700-800W	Movable type
TM-2011P	TM-2011	700-800W	Movable type with picture
TM-2011J	TM-2011+ bread supporter	700-800W	Movable type
TM-2011F	TM-2011	700-800W	Fixed type

Model	Appearance	Rated power input	Type of shelf	Additional functionality
TM-2006P	TM-2006	700-800W	Movable type with picture	No
TM-2006MJ	TM-2006+ bread supporter	700-800W	Movable type	Music
TM-2006M	TM-2006	700-800W	Fixed type	Music

TM-2006MJ is totally same as TM-2006J in the original report except for the music function.
TM-2017T is totally same as TM-2015T except for the appearance.

After review TM-2010F, TM-2011P and TM-2006MJ were subjected to full tests and the most unfavourable data was recorded.

Test report ref. No. EFSH15030095-IE-01-E01-A3 is replaced by this test report ref. No. EFSH15030095-IE-01-E01-A4.

12 Amendment 5

The test report Ref. No. EFSH15030095-IE-01-E01-A4 dated 2020-08-25 was modified on 2022-09-16 to include the following changes and/or additions:
1. Update technical standard to “EN IEC 55014-1: 2021”.
2. Update technical standard to “EN IEC 55014-2: 2021”.
3. Update technical standard to “EN IEC 61000-3-2: 2019+A1: 2021”.
4. Update technical standard to “EN 61000-3-3: 2013+A1: 2019+A2: 2021”.
5. Add new models TM-2019B, TM-2020B, TM-2019J, TM-2019J, TM-2019BJ and TM-2020BJ.

Similarity:

Model	The original model	Bottom enclosure	Additional functionality
TM-2019B	TM-2019	changed	No
TM-2019J		No	bread supportor
TM-2019BJ		changed	bread supportor
TM-2020B	TM-2020	changed	No
TM-2020J		No	bread supportor
TM-2020BJ		changed	bread supportor

TM-2019BJ is totally same as TM-2019 in the original report except for changed the bottom enclosure and add bread supportor.
TM-2019B is totally same as TM-2019BJ except for the bread supportor.
TM-2019J is totally the same as TM-2019BJ except for bottom enclosure.
TM-2020BJ is totally same as TM-2020 in the original report except for changed the bottom enclosure and add bread supportor.
TM-2020B is totally same as TM-2020BJ except for the bread supportor.
TM-2020J is totally the same as TM-2020BJ except for bottom enclosure.

After review, no additional test need to be done.

Test report ref. No. EFSH15030095-IE-01-E01-A4 is replaced by this test report ref. No. EFSH15030095-IE-01-E01-A5.